

# THE IRON AGE

THURSDAY, SEPTEMBER 19, 1889

## Fore-and-Aft Compound Engine.

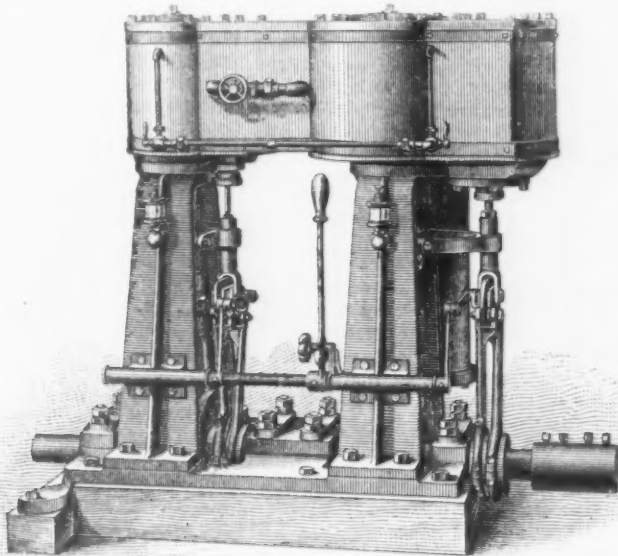
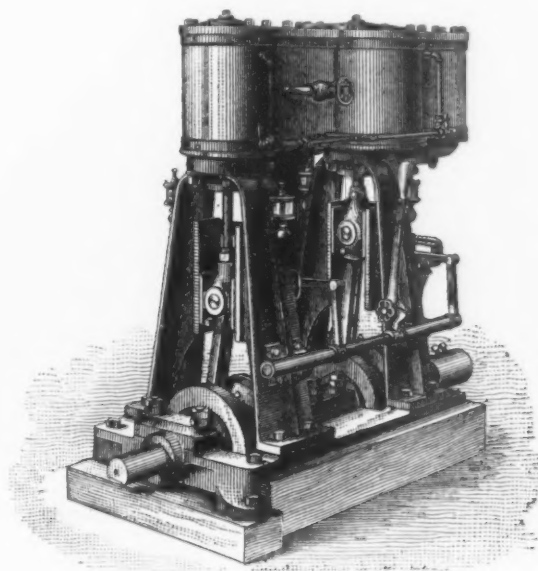
In our issue of September 5 we illustrated a steeple compound engine built by the Shipman Engine Company, of Boston, Mass., which was particularly intended for use on yachts because of the very small amount of space occupied. We this week present engravings of a fore-and-aft compound engine built by the same company, and which is not unlike the average fore-and-aft compound engine. The cylinders are  $4\frac{1}{2} \times 9$  inches, the stroke being 5 inches. The engine is provided with the usual double eccentrics and link motion, and both the high and the low pressure valve-gears are operated by arms secured to a shaft moved by the lever. The cast-steel shaft is  $2\frac{1}{2}$  inches in diameter, is made in one piece and is provided with balanced disks. The shaft-boxes are extra long. The cranks are placed at  $90^\circ$ , thereby

tending from weight of 40 pounds per yard to weight of 69 pounds per yard, of which 10 are for weights of from 56 pounds to  $62\frac{1}{2}$  pounds per yard, inclusive; that the Cambria Iron Company have rolls for 30 sections, embracing weights from 40 pounds per yard to 67 pounds per yard, of which 10 are for 60-pound sections and 20 are for weights of from 56 pounds to  $62\frac{1}{2}$  pounds per yard; that the Edgar Thomson Steel Company have rolls for 32 sections, embracing weights of 50 pounds to 85 pounds per yard, of which 17 are for weights of 56 to 63 pounds per yard. It is evident that if a set of standard sections were adopted 13 sets of rolls would be sufficient to embrace all the sections from 40 pounds to 100 pounds per yard, advancing by increments of 5 pounds, that the saving in expense of rails must inure to the benefit of the railroad companies using the rails, and that if it were possible

## UNIFORM TESTS.

*Resolved*, That a committee of seven members of the society be appointed by the president to recommend uniform methods of testing the materials used in metallic structures.

*Argument For*.—The testing of materials used in metallic structures is becoming more general every year and engineers are beginning to insist upon knowing all the characteristics of materials used by them in the construction of these structures. A large number of tests are daily being made, the results of which, subsequently published in the transactions of this and other societies and in the technical press, would be of more value to the profession were these results comparable. The deplorable lack, however, of uniformity in the methods pursued of making these tests has hitherto rendered their results non-comparable. For example, in comparing



THE SHIPMAN FORE-AND-AFT COMPOUND ENGINE.

avoiding dead-centers. All the wearing parts are adjusted for the taking up of lost motion and are provided with oil-cups. The engine is neat in appearance and compact.

## Standard Rail Sections and Uniform Tests.

At the business meeting of the Seabright convention of the American Society it was resolved to appoint certain special committees to report on various subjects. Whether or not these committees shall be appointed must be finally determined by a letter ballot of the society, and accordingly the resolutions are submitted, with brief statements of the arguments for and against. The vote will close October 2.

### STANDARD RAIL SECTIONS.

*Resolved*, That a committee be appointed by the Board of Direction to be authorized and instructed to report to the society a set of standard rail sections of weights, beginning at 40 pounds, and advancing by increments of 5 pounds to 100 pounds per lineal yard.

*Argument For*.—It was shown by the mover of the resolution at the annual convention that the Pennsylvania Steel Company have rolls for 24 sections of rails, ex-

to adopt also a uniform standard of drilling, rails of the sections most in demand could be kept in stock by the rolling-mills, which would have the twofold advantage of enabling the mills to run when orders were slow and of enabling railroad companies to get orders for such sections filled upon short notice. The saving on the whole would probably amount to not less than \$1 per ton of rails made.

*Argument Against*.—There were no objections raised to the resolution at the convention. The only objection known is that the adoption of standards tends to check experimentation and thereby to a certain extent to prevent improvements. In this case the probable effect would be to relieve the engineers of railroad companies of the burden of designing new sections. The adoption of standard sections would do away with a great many of the rolls now in use, but it is believed that the rolling-mills will not object to this in view of the advantage of procuring those standards.

There is a feeling among some of our members that there are questions connected with the determination of the best rail section not yet sufficiently determined to warrant the promulgation by a committee of the society of a section to be called standard.

the specifications of various railroad and bridge companies it will be observed that the "elongation test" is to be measured in some cases in 8-inch and in others in ten times the smallest diameter of the test specimen, and again in others in 12 times the same diameter. It will also be observed that the sizes of the test specimens required are variable, although these variations are not so great as in the lengths specified for the determination of elongation tests. For these reasons it seems that if a uniform method of testing materials could be formulated worthy of recommendation by this society it would prove of much value to the profession in rendering comparable the results of the tests made by different experimenters.

It is also thought desirable that methods commended in pursuance of the foregoing suggestions should be such as will subject test specimens to a treatment approximating as nearly as possible to the service conditions of such materials under actual working stresses. If an acceptable code of testing can be so devised not involving excessive cost in preparation of necessary test samples, and one that, while perfectly fair to the manufacturers, would be convincing and satisfying to the engineer, united to uniform laboratory practice, it could not fail to greatly add to our present

knowledge concerning the qualities and resistances of structural materials, encouraging the manufacturer to increase his efforts to raise the standard of the same, and also affording him a guarantee that the results of such efforts will be duly recognized, appreciated and intelligently recorded in a mode affording a just and equitable comparison with others.

*Argument Against.*—The board report that they have found no arguments against the adoption by the society of this resolution, except that the labor devolving upon the committee would be very great.

#### SPECIFICATIONS FOR MATERIAL.

*Resolved.* That the same committee be requested to report such requirements for these materials as, in their judgment, may conduce to further improve the grade of such structures.

*Argument For.*—In comparing the specifications issued by the principal railroad companies, defining the qualities as to strength, &c., of the materials used by them in their structures, a considerable difference of opinion is found as to what these requirements should be. A few manufacturers have agreed upon and issued what they call a standard specification, covering certain requirements as to quality of materials. In many cases engineers whose practice in this line has been limited and who are not familiar with the manufacture of materials have been led to adopt the manufacturers' specifications, on the ground that the manufacturers ought to know what they can best produce. Manufacturers, however, are not always the best judges of what qualities materials should have, as they are of necessity biased and desirous of having specified such qualities as can easily and economically be secured in current manufacture. Engineers employing these materials in construction should have full liberty to specify such qualities for these materials as in their judgment are necessary to improve the grade of such structures. For which reasons it seems desirable that this committee should report a general specification covering all requirements for materials used in metallic structures, which, although not necessarily called a "standard specification," nor indorsed as such by the society, would serve as a guide to such members of the profession as are not familiar with processes of manufacture and enable them to specify such qualities for materials as seem to them best suited for their intended uses.

*Argument Against.*—The adoption of standards in forms and sizes tends to discourage experimentation and thereby to prevent improvements. The specifications in regard to maximum strains to be allowed depend in many instances upon State laws, which vary in the several States, and therefore standard specifications in this respect would not be practical.

Also, the work of a committee intrusted with the presentation of the report demanded by this resolution would interfere with that individual direction of and responsibility for work which should be left entirely to the engineer in charge.

The Russian oil wells along the shore of the Caspian Sea, the prodigious yield of which has exceeded in quantity the most noted wells in Pennsylvania, as might have been expected, have more quickly exhausted the subterranean store of oil from which their product has been drawn. The yield for the last year has fallen one-half below the estimate, and the deficit will have to be made good in America. Up to this time the petroleum producers of the United States have encountered no rivalry except the low-priced petroleum of Russia, which has interfered with their trade in foreign markets.

## THE PARIS EXPOSITION.

### Exhibits of French Iron-Makers.—I.

Continuing the review of the exhibits in the French iron and steel section, we meet as we progress a greater number of larger producers of heavy goods, while the exhibits of products of higher finish fall off in number and importance. The Société Métallurgique du Périgord, with works at Fumel (Lot-et-Garonne) who have their own blast-furnaces, make a specialty of cast-iron pipe. Among other articles they exhibit a 3.2-foot pipe, of which about 38,000 feet were used for the syphon which conveys water from Budos to Bordeaux, and a 1.1-meter (3.6-foot) pipe, of which 4500 meters (14,474 feet) were required for the Vanne syphon of the Paris water supply.

H. Rémaury, 81 Rue Saint-Lazare, Paris, formerly connected with the Ars-sur-Moselle and Pompey works, and F. Valton, who was identified with Terrenoire, seek to make converts to their neutral lining by displaying a number of samples of steel. They claim great advantages for chrome ore for the bottom for open-hearth furnaces, which has been put into use in France, Spain, Russia, Italy and England. If we remember correctly, Bell Brothers, at Clarence, near Middlesborough, have experimented with it.

Among the smaller exhibits in this part of the section are fair malleable castings by Veuve Jules Jacquemart, of Charleville (Ardennes), and a fine lot of circular saws by Paul Hug & Cie., Paris. Axles, wheels and heavy shafting, I. de Schryver & Cie., Hautmont (Nord). Armand Chappée, of Mans (Sarthe), with works at Autoigne (Sarthe) and at Port Brillet, makes cast-iron pipe and architectural castings. A handsome showing is made by the Compagnie des Forges de Champagne, of Vassy, with four furnaces at St. Dizier and Marneval and rolling-mills and steel-works at the latter place and at Rachecourt. The company produce annually 60,000 tons of pig-iron, 17,000 tons of puddled bars, 6000 tons of steel in two basic open-hearth furnaces, and 20,000 tons of merchant iron and steel. They make wire, angles, tees, and particularly neat special shapes. The only French barb-wire maker your correspondent found in the exposition was Th. de Hennaou, of Creil (Oise), who produces also wire and wire nails. Rounds, bars, chains, tacks, brads and wire nails are exhibited by J. Marcellot & Cie., of Eureville (Haute-Marne), while Ernest A. Lorin, of Gros-Noyer-St.-Prix (Seine-et-Oise), makes a specialty of chains and differential pulleys. Proutat, Thomeret Frères & Creusvaux, of Arnay-le-Duc (Côte d'Or), display a very handsome line of files and rasps. The Forges de Manois, Comte Henri de Beurges, at Manois (Haute-Marne), show bars; Jules Grigné, 12 Rue de Malte, Paris, a small but good lot of malleable castings, and Mineur ses Fils & Wilmot, of Vireux-Molhain (Ardennes), angles, shapes and beams. M. Dalifol & Cie, Quai Jemappes, Paris, exhibit a very handsome series of malleable iron and steel castings. Particularly interesting are a number of the very finest art castings on plaster-of-paris molds.

The Robert process comes forward with strong claims to attention in the notable collection of articles by the Société Anonyme des Hauts-Fourneaux, Fonderies, Forges et Laminiers de Stenay, of Stenay (Meuse)—giving them the benefit of their full title. They show a splendid lot of steel castings, including wheels, gears, car-boxes, frogs, rolls, axes, picks, &c., many of them giving evidences of a remarkable capacity to stand torture. Among other articles, your correspondent

observed a cast rudder weighing 2.35 tons and a 1.927-ton stern-frame for a third-class French cruiser, a shaft for a coal-washing machine, with 18 bends, and the piston of a Greindl pump. Numerous specimens bear testimony to the welding qualities of the steel. Your correspondent may state in this connection that he had occasion to see a Robert converter at work in a foundry in Paris, meeting there M. Robert himself. The apparatus itself was not calculated to deeply impress the beholder, nor were the data submitted as to waste, &c., definite and final enough to dispel doubts. Thus the claim that the waste was 12 per cent. was likely to make those conversant with Bessemer practice decidedly skeptical. The most striking fact was, however, the length of time the metal retained its heat and the ease with which the casting operations, distributing the metal among numerous flasks, were carried out. It is claimed that the same thing can be done from any small converter properly handled. We must confess that we have seen it done. However, the process is being tested at so many points in this country that its merits and its drawbacks will soon be pretty thoroughly established. Probably it will be found that its range of utility lies somewhere between the extremes claimed for it by its advocates and the lines drawn by its sharpest critics. Incidentally your correspondent may state that it is in use at Stenay, where two acid and two basic converters are running, at Paris and at the Forges de St. Nazaire, in France; at Angleur, in Belgium; at Vanzetti, Milan, Italy, and at Blaen Avon and John Brown & Co.'s, in England.

The largest cast-iron pipe foundry in France, the Société Anonyme des Hauts-Fourneaux et Fonderies de Pont-à-Mousson, at Pont-à-Mousson (Meurthe-et-Moselle), have distinguished themselves by not alone displaying their products, but also by submitting historical data bearing on their business in the form of graphical charts. The works were started in 1856 by Mansuy & Cie. with a paid-up capital of 1,600,000 francs, and in 1886 passed into the hands of the company, who have a capital of 2,047,500 francs. It is stated, however, that since their foundation about 6,000,000 francs have been spent on the works, the greater part of it being drawn from the profits. The company have four coke furnaces, making about 45 tons each of foundry iron per day, the whole plant giving employment to 1300 men. The maximum product from year to year was marked as follows, the table giving the length of pipe made:

	Meters.
1872.....	162,000
1875.....	313,500
1878.....	334,500
1882.....	351,500
1885.....	555,200
1888.....	943,500

The following table gives the averages in periods of four years:

Years.	Production. Tons.	Cost. Francs per ton.	Average annual wages. Francs.
1864-68.....	5,080	151.60	843.36
1869-73.....	5,981	153.70	911.46
1874-78.....	13,790	151.20	1,121.55
1879-83.....	22,166	123.60	1,175.70
1884-88.....	32,267	94.60	1,201.55

The figures of production are, of course, not equal to those of several of our large foundries, but they are interesting as proving rapid development. The figures for the furnace work are as follows:

Years.	Production of furnaces. Tons.	Used by company. Tons.	Consumption of fuel per ton of pig. Kg.
1864-68.....	15,635	5,766	1,685
1869-73.....	23,620	6,570	1,588
1874-78.....	51,907	15,309	1,489
1879-83.....	51,601	22,320	1,360
1884-88.....	39,665	35,690	1,220



Among the large castings made by Pont-à-Mousson were the 1.8-m. (5.9-foot) pipe for the sewer from Paris to Acheres.

The Usines de Marquise, of the firm of Le Blanc, Georgi & Cie., Marquise (Pas-de-Calais), are producers of pig-iron and make a specialty of heavy architectural and machinery castings, a specimen of the latter being exhibited in the form of a large fly-wheel.

An exhibit of some interest is that of the Oury weldless chains made by the Société des Chaines en Acier Sans Soudure, of 69 Rue de la Victoire, Paris, whose works are at Massardière, near St. Etienne. The system followed is that which, we believe, has been experimentally tested independently here of rolling a bar having a cuneiform section and thus forming the links. The different stages of the process of manufacture were shown, but nothing could be learned by your correspondent touching the commercial and manufacturing success of the enterprise.

Cement steel and products thereof are shown by Berthomieu & Cie., 109 Rue Saint-Charles, Paris. The famous works of Hardy-Capitaine & Cie., of Nouzou (Ardennes), have a very attractive display of malleable and crucible steel castings, including a cast bust of the founder of the works, a self-made man.

A very fine exhibit of wrought-iron pipe and fittings comes from Mignon, Rouart & Delinières, of Montluçon (Allier), who show also the hollow connecting-rod of the armor-clad Le Vengeur.

Contrasting with the iron and steel exhibits surrounding it is the display of the Société Anonyme Ferro-Nickel, whose works are at Lizy-sur-Ourcq (S. et M.). They manufacture a wide range of nickel alloys, marketed in the form of plates, rods, castings, buttons, sword-hilts, cases, caps, chains, watch-charms and monograms. They produce also a special alloy, No. 3, which they claim is specially well adapted for covering small caliber rifle-balls. They submit tests of a 5 per cent. nickel alloy, with 0.3 carbon, showing an elastic limit of 30, a breaking strength of 46.8, an extension of 10.5 per cent. in 8 inches and 13 per cent. in 4 inches, and of a second alloy containing 5 per cent. of nickel and 0.22 carbon, showing an elastic limit of 28.6, a breaking strength of 40.7, an elongation of 20.5 per cent. in 8 inches and 25.7 per cent. in 4 inches.

Eugene J. Legénis & Fils, 28 Passage Vaucouleurs, Paris, is evidently a producer of particularly fine die-steel, besides making steel and malleable castings. Plans of two furnaces at Micheville (Meurthe-et-Moselle) are shown by Ferry, Curicque & Cie., of Micheville-Villerupt, who produce also plates and sheets at the Forges du Laval-Dieu (Ardennes), and bars, rods and shapes at the Forges de Crespin (Nord).

One of the largest French concerns is the Société Métallurgique de l'Ariège, of Pamiers (Ariège), with a capital of 5,000,000 francs, who make a high-grade pig in their furnaces at Tarascon and at Berdout. Cement steel is produced at Saint-Pierre, near Foix, the principal establishment, however, being at Pamiers, where there is a puddling-mill with 16 furnaces, an open-hearth plant with one 15-ton, one 13-ton and one 4-ton furnace, a crucible furnace, six trains of rolls, a tire-mill and a forge with six hammers up to 15 ton. The concern make smaller calibers of guns, produce as a specialty shells forged on a mandrel by a special process up to 27 mm., and manufacture on a large scale very handsome tires, shafts, axles, wheels, springs, tool-steel, bolts, carriage-springs, wire and castings.

A splendid exhibit of wrought-iron pipe, attractively grouped, is that of the Société d'Escaut & Meuse, 58 Rue de la Verrerie, Paris. Your correspondent noted an enormous coil, gradually tapering, an iron strip 60 m. long, 3 mm. gauge,

tubes with copper ends, scarfed, and pipe with internal ribs, patented by Jean Serve de Givors.

Rails, beams and shapes are shown by the Société Anonyme des Aciéries de France, who have collieries at Aubin, Cransac (Aveyron) and Le Gua, lead mines at Villefranche and steel-works at Isbuerge. A wider range of products is made by the Société Métallurgique de Gorcey, at Gorcey par Longwy (Meurthe-et-Moselle), who have iron mines at Montiers, in the same department, and at Musson, in Belgium, and Titelberg, in Luxembourg. They produce pig, wire, bolts, nuts, rods, chains, spikes, washers, wire nails and tacks and roll shapes and beams. Interest attaches to their bars drawn on a 50-ton bench.

### The Next Century of the Republic.

Next year the eleventh census of the United States will be taken, and we shall know exactly what has been our growth in population during the last 100 years. When the first census was taken, in 1790, the population was found to be a little short of 4,000,000, or, in exact figures, 3,929,214, and there was great disappointment over the result, for the estimates had been extravagant and boastful; but subsequent censuses proved that the returns were substantially correct. In other words, the number of inhabitants in the whole Union a century ago was only about equal to the present population within a radius of 50 miles from the City Hall. Even at the middle of this century, or in 1850, the total population of the Union was only a little over 23,000,000, or about equal to the combined present population of the five States of New York, Pennsylvania, Ohio, Illinois and Missouri. Since that time, or in the short period of 40 years, the number of inhabitants in the Union has increased by nearly threefold, Gen. Montgomery Cunningham Meigs, an unusually accurate and sagacious observer and skillful mathematician, estimating in *Science* that the census of the next year will show our population to be 67,240,000. The number in 1892, according to that very reasonable estimate and the average ratio of our growth, will be about 72,000,000, of whom about one-half will be within easy railroad and steamboat communication with New York, and of whom more than one-quarter will be in this State and States contiguous to New York.

But General Meigs' very striking article is devoted rather to a consideration of the probable growth of the Union during the next century, or from 1890 to 1990. Our mean rate of increase during the last 100 years has been 33.46, and he thinks it not rash to assume that during the coming century it will be 33.3. On that basis he thus calculates our probable population:

1890.....	67,240,000	1950.....	381,763,837
1900.....	89,653,333	1960.....	509,018,449
1910.....	119,737,777	1970.....	678,691,265
1920.....	159,650,377	1980.....	904,921,686
1930.....	212,867,177	1990.....	1,206,562,248
1940.....	283,822,877		

Mr. Gladstone not long since wrote an article for a Boston periodical, in which he followed somewhat the same line pursued by General Meigs, but he questioned, and not unreasonably, whether our future growth during so long a period as a century would be proportionately so great as the past. Yet he deemed it not improbable that 100 years hence our population would equal 700,000,000, and he pointed out that here indubitably is to be the great home of the English-speaking race and here its overmastering power.

If General Meigs' estimates are justified by the fact, the density of population will be 399 to the square mile, or a little more than that of England at present, which is 389 to the square mile. If Mr. Gladstone is right it will be about 232, or something more than that of Massachusetts now, 201

to the square mile. In either event this would be one of the most thickly populated countries of the globe. But General Meigs is not disturbed by forebodings because of so vast a body of people. He is sanguine that the improvements in the appliances of civilization and social regulation will so far multiply during the century that the 1,200,000,000 can live on this continent in comfort and happiness. "Armed with all that science teaches and man has invented, who," he asks, "will wish to interfere with their happiness—who will attack them?"

He estimates that the urban population in 1990 will be 246,000,000, and of New York alone 30,000,000, and draws from the calculation assurance of great increase in the value of landed property and of all trade and commerce. "Those who believe in the prospects here set forth," says General Meigs, "will rule their undertakings and investments in the expectation that property in real estate must advance in the next half-century; that commerce and transportation must increase enormously." He puts the period at 50 years because very many living men will survive to witness the growth. What we have accomplished in the past seems small as compared with what is to come within that time.

The *Sun* adds: "These very striking views, startling in their optimism, are presented by a man who is now in his seventy-fourth year, vigorous, sanguine, and of indomitable spirit after more than 50 years of laborious public service. Other officers during the war of the rebellion won a more brilliant fame with the people, but none among them displayed higher abilities or rendered services more important than Q. M. Gen. Meigs. Never has any public officer retired from active duty in any country or at any time who deserved higher honor than he for scrupulous honesty and the wise and conscientious performance of multifarious duties of vast magnitude and enormous difficulty. Faithful service has brought to him the reward of a mind at ease and a spirit buoyant and youthful. May Gen. Montgomery C. Meigs be with us in New York in 1892 to celebrate the discovery of America and to join in the confidence of the future which will animate all his countrymen on that glorious occasion."

Chauncey M. Depew, lately returned from Europe, gives his opinion of the French exhibition. He says: "There is no use in belittling it. Never in the history of the world have the products of all nations except the United States been so admirably presented to the view. More: there has never been anything which began to equal it. The buildings alone cost \$11,000,000. All nations, even old Egypt and little Costa Rica, are displaying their treasures of nature and art there to their fullest extent, except our own." He saw nothing there to make him boastful of America. On the contrary, he was, on coming out, in no wise disposed to flourish the American flag, but "could have put it in his vest pocket."

Engineer Menocal, who is about to leave New York for Nicaragua, says the canal company have contracted for the purchase of six enormous dredges for the improvement of Greytown harbor, as it is impossible to land machinery or steel rails until this is done. He expects to complete the canal in six years.

Sections of submarine cable have been taken up which show no sign of deterioration after having been in the water for more than 35 years. Water, and especially salt water, seems to be a preserver of insulating compounds.

## Friction-Clutches.

The drawings here presented show the construction of two styles of friction-clutches made by Edward P. Allis & Co., of Milwaukee, Wis., and intended for light and heavy work. In designing these clutches the aim was to provide a simple, durable and efficient clutch for connecting shafts and one that would readily and quickly respond to its operating mechanism.

In the clutch intended for light work is a coiled spring, one end of which is connected to one of the shafts to be coupled, while the other end is free to move. The spring is expanded so as to frictionally engage a shell secured to the opposing shaft. The spring is of cast-iron, and is formed at its inner end with a collar, through which the shaft passes and to which it is keyed. To the other shaft is secured a shell having an overhanging flange, within which the spring is so arranged as to come in contact when expanded. The outer coil of the spring is

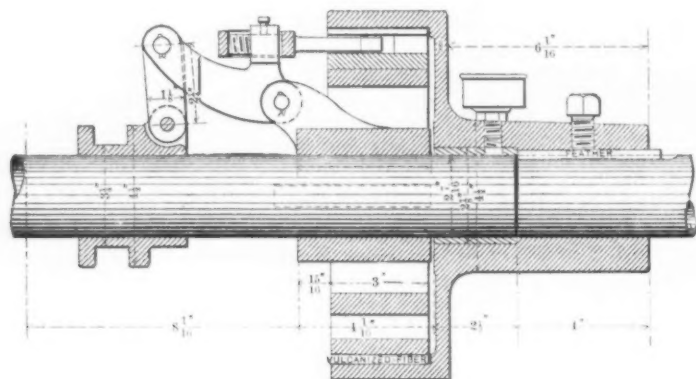
The friction-clutch designed for heavy work differs from that just described in the form of the spring, but the method of operating is the same. The arrangement of the two shafts and of the spring and shell is clearly shown in the drawings. In both cases the end of the shaft carrying the clutch is seated snugly, but so as to turn freely, within the shell. The hub D is keyed rigidly to the end of the shaft B. This hub is encircled by a ring, *d*, connected to the hub by a key, *d'*, diametrically opposite which the ring is divided transversely and its ends beveled in opposite directions to fit the sides of the wedge E. Vulcanized fiber separates the spring and shell. As the wedge is forced inward by the lever, shown in the longitudinal view, it expands the ring, which engages frictionally with the shell. It will be noted that the ring is free to move radially at all points in its length. This, and the fact that the hub is kept in a true central position by the bearing of its shaft in the shell, insures a close contact and uniform pressure between the frictional surfaces at

## HIGHWAY BRIDGES.

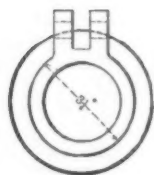
## NEED OF REFORM IN LETTING.

The shocking state of affairs so far as iron and steel highway bridges—notably in the West—are concerned is described by J. A. L. Waddell, consulting engineer and agent of the Phoenix Iron Company, at Kansas City, Mo. Mr. Waddell some time since issued a pamphlet in which he reviewed the present methods of letting highway bridges, and proposed general specifications, with the object of bringing out a discussion on the best means of bringing about a reform; at the same time he proposed general specifications of his own. He has just issued a second enlarged edition of that pamphlet, from which we quote the following chapters, in which he describes the ordinary routine of bridge lettings:

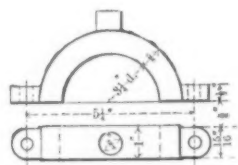
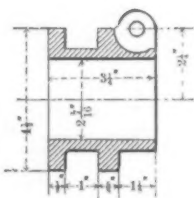
A month or two before the letting occurs an advertisement is put in a local paper



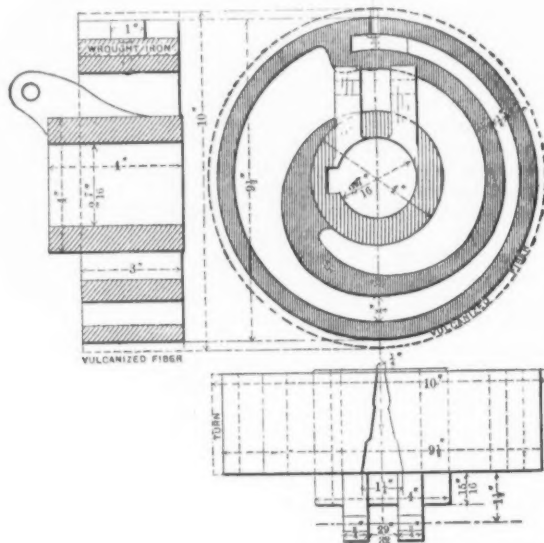
Longitudinal Section.



Shifter Sleeve.



Shifter Strap.



Friction Hub.

## FRICTION-CLUTCH FOR LIGHT WORK, MADE BY E. P. ALLIS &amp; CO.

formed with a shoulder a short distance from its free end, and from this point the outer coil extends in a circular path within the shell. The spring is expanded by means of a wedge arranged to be moved axially between the free end of the spring and the shoulder. The wedge is adjustably mounted on an upwardly-extending arm of a forked lever, one end of which is pivoted between ears formed on the collar of the spring, while the other end is pivoted to a sliding collar on the shaft by means of a link. The sliding collar is grooved to receive a ring, which is connected to a hand-lever. As the wedge is moved inward between the free end of the spring and its shoulder it forces the end of the spring outward, thereby causing the outer coil to engage the inner face of the flange at all points, thereby securing the shaft carrying the spring to the one carrying the shell. When the wedge is withdrawn the spring resumes its normal position out of contact with the shell. In order that the friction between the spring and shell may be such as to cause the one to readily partake of the motion of the other, the surface of the outer coil is covered with vulcanized fiber.

all points. The driving-strain, being applied at two points on opposite sides, balances in such a manner as to avoid side strains and the tendency of the clutch device, shaft and shaft-bearings to wear eccentrically.

How canals sometimes operate as a check to extortionate freight charges in railway transportation is forcibly illustrated not only in the experience of the New York State canals, but in the recent closing of the Chesapeake and Ohio Canal. The Washington *Star* reports that people living along its line who could get Cumberland coal at \$2.50 per ton while it was in operation are now forced to pay \$5 per ton under railroad transportation. The same change in the transportation of the agricultural products and food staples of that section is noted.

The sentence of 23 Hungarians convicted of rioting during the late strike in the coke region to one year's imprisonment each will teach a salutary lesson. They will learn that their rights can be better secured by obeying the law than by defying the law.

stating that on such a day at a certain hour bids will be received for one or more bridges. Generally the spans are given and often the width of roadway, but here the list of data usually ends. Sometimes, though, a fairly complete list is given, enabling contractors to make their designs before visiting the locality where the bridge is to be let. On the day of the letting, or perhaps a day earlier, from 10 to 20 "traveling men," some representing bridge companies, but others merely "scalpers," assemble for the purpose of "putting up a job" on the county by getting as large an amount of money as the commissioners will give in exchange for as light and cheap a bridge as they will accept.

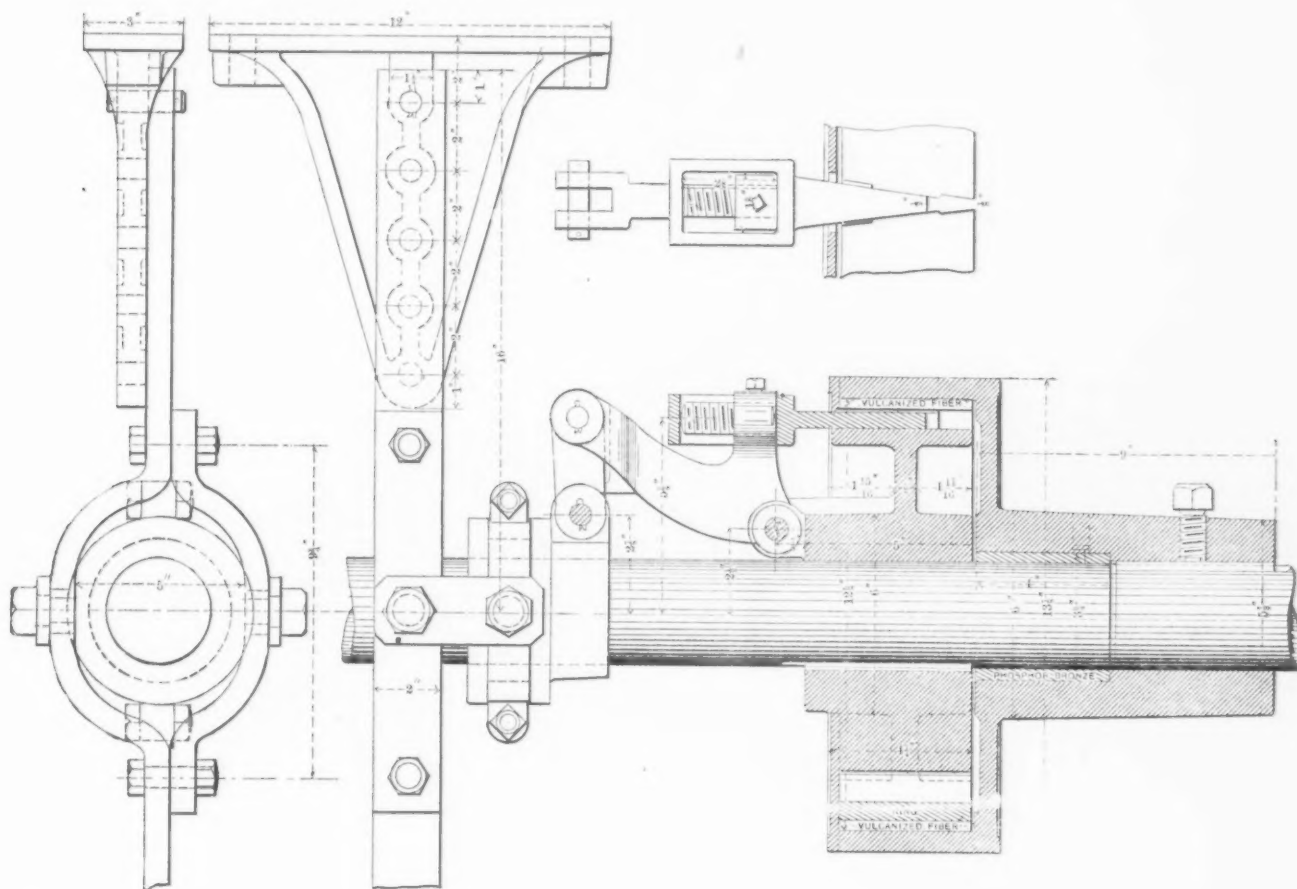
There is usually a secret meeting of the competitors, at which it is decided, 1, "how much the bridge will stand"—i. e., what is the greatest sum they dare ask; 2, what the cheapest acceptable bridge ought to cost; 3, who is to have the contract, and, 4, how the estimated profits are to be divided between the one who takes the contract and his unsuccessful (?) competitors. If these four points can be settled amicably all goes well; but as there are al-



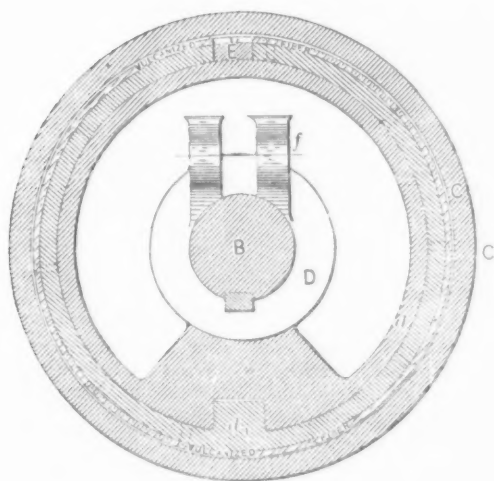
ways wheels within wheels the meeting not infrequently is dissolved without an understanding being arrived at. In this case the competitors "go in on a fight," as they term it, bidding far below the cost of a legitimate structure and often below that of the cheapest bridge they can erect, merely for the sake of spiting

est possible description, with the full intention of scamping the work in every way that they dare. As the lowest bid is generally accepted (one bridge being as good as another in the eyes of most commissioners), the county is sure to get a disreputable piece of work. In certain States—for instance, Missouri—the law makes it

of it, is quite ingenious. Mr. A. attends the letting with two sets of papers that at first glance appear to be exactly alike. A close inspection, however, would show that they represent two bridges of widely varying weights. In one thick metal is used throughout; in the other the thinnest that



FRICION-CLUTCH FOR HEAVY WORK, MADE BY E. P. ALLIS & CO.



Section through Clutch.

some other bidder. Occasionally two companies get into such a wrangle that their representatives cannot meet at a letting without causing a "fight." The formation of a pool may be bad for the county, but "going in on a fight" is much worse. In the first case there is a chance of obtaining a passable structure, but in the second case there is none whatsoever.

The irresponsible bidders (and their name is legion) put in designs of the light-

compulsory that the bridge lettings be done by public outcry. In such cases the *modus operandi* is this: The commissioners select the papers of one of the bidders, and upon this basis the bridge is auctioned off to the lowest bidder. As far as pooling is concerned this auction method has no effect either way; but when a fight occurs, the party whose papers are chosen has a decided advantage which at first thought is not apparent. The explanation, though, is simple, and the scheme, to say the best

can be obtained. Mr. A. gives the heavy papers to the commissioners for the crowd to bid upon, and when the auction takes place he bids upon the basis of the weight of the light structure, and consequently can afford to go lower than any one else. As soon as possible after the work is knocked down to him by the auctioneer he asks to see the papers and avails himself of the opportunity to effect an exchange. This plan of exchanging papers is by no means confined to auction lettings; it can be made to work at any kind of a letting.

Sometimes the commissioners have some local engineer, or perhaps a bridge-builder, prepare special designs for every competitor to bid on. Unless the designer takes care to use throughout the thinnest shapes that are rolled the chances are that the bridge will be built of the latter, for the iron-work, of highway bridges is very seldom touched with the calipers after it leaves the shop. Not only do some contractors put in lighter sections than are specified, but they also figure upon doing so when making out their estimates of cost. In general, county commissioners, before inviting tenders, make an appropriation for the work, the amount of which bridge men make it their business to ascertain. It is seldom, indeed, that the amount is found to be too small to build some kind of a bridge. By shortening the total length, substituting wood for iron, narrowing the roadway, decreasing the live-load and increasing the unit stresses, a design can be made to come within the appropriation and still leave a little to divide among the bridge

men. There is no surer means than this of obtaining a dangerous structure.

The question of bribing commissioners need not be entered upon here. That they are peculiarly persuaded sometimes even the most hardened contractor will not deny; he will merely assert that it was some other man who did the bribing. From the foregoing it might be supposed that the author is unyieldingly opposed to the pooling system; on the contrary, he considers it a necessary evil. What he objects to is that it is carried too far. At first it was used to insure the different bridge companies attending a letting against loss of time and traveling expenses. In this respect it was legitimate, for if the supervisors insist upon bidders attending lettings in person, it is only right that the former should pay for the pleasure of their company. But finding it so easy to be reimbursed for actual expense, the competitors very soon conceived the idea of making a little profit out of their misfortunes. Traveling men seeing what a profitable business attending bridge-letting had become, began to set up little bridge companies for themselves, thus increasing the number of competitors and filling the country with a crowd of so-called bridge-builders, whose offices and shops often consist merely of desk-room somewhere, and whose only desire in attending lettings is to extort blackmail.

Purchasers of bridges have only themselves to thank for the institution of pooling. Were contractors assured of fair dealing in every case they would prefer to send their bids by mail, but unfortunately partiality is too often the order of the day, therefore in self-defense they have been forced to pool. The following amusing incident was related at the rooms of the Engineers' Club of Kansas City after one of the meetings at which the contents of the first edition of this pamphlet were discussed. It was published the next morning in the *Kansas City Journal*, and as it exemplifies very clearly one of the numerous tricks of the trade, it is reproduced here, notwithstanding its rather inelegant diction:

"A bridge-builder was telling me a sort of funny story the other day, and, I have no doubt, similar occurrences often happen. He was down in Southern Missouri some time ago to bid on a bridge. Of course he was pooling or he wouldn't have been there. There were 14 bidders in the whole crowd, and 13 of them were to put in bids away up out of sight, while the fourteenth would put in a bid that would be just low enough to be in sight, get the work and pay the other 13 a commission.

"Some one ascertained that the Union Bridge Company, of Buffalo, had submitted plans to the commissioners, but had no representative on the ground, and of course the pool was 'busted' unless the Union Company could be floored.

"Now, county commissioners don't know a bridge plan from a picture of Christ before Pilate. They look at them very soberly, and if no one is around who has sense enough to see that they are holding them upside down, they are quite liable to get a reputation for wisdom.

"We had to 'down' the Union Company or lose our traveling expenses, and one of the bidders present said:

"I'll go in and look at those Union plans and see if I can find anything the matter with them."

"He went in and expatiated on his own plans, told the county commissioners that all the rest of us were thieves, and then came out and said:

"Boys, those plans are on the table in there, and I can't find a cussed thing the matter with them except that the lower chord of the bridge is made of round iron instead of flat."

"Well, of course you know that makes hardly any difference at all about the

strength or durability of a bridge. It's just a little unusual, that's all, and I suppose that the Union Company would have given flat iron at the same price.

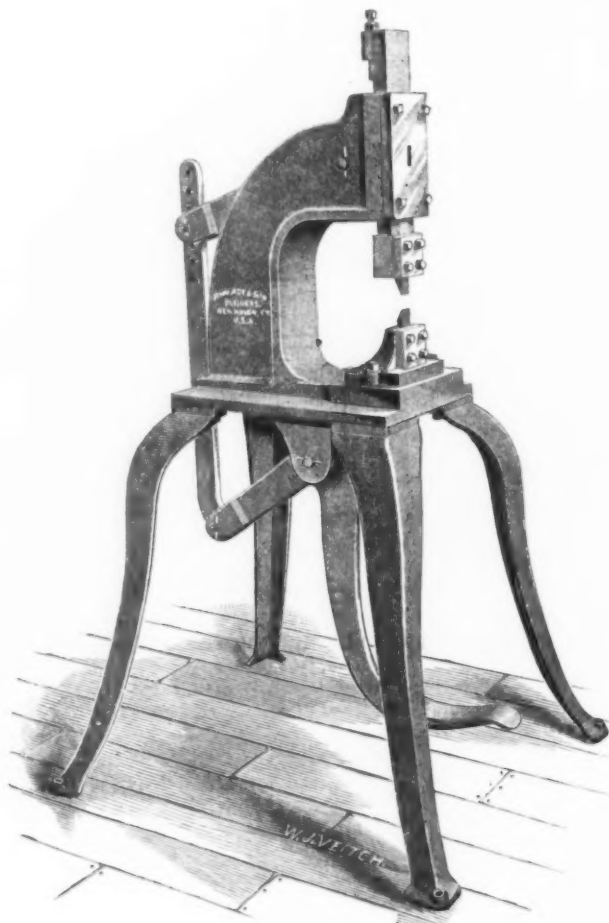
"Then I went in, and after telling the commissioners how good I was and how my plans were the greatest effort of my life, I looked around casually and glanced at the Union plans and said: 'Humph! That fellow's pretty old-fashioned. Uses round iron, don't he?'

"Then I went out and the next man went in, and after ten minutes' free exhibition of the noblest public spirit Missouri ever produced, his eye caught the Union bridge plans, and he said: 'Well, that fellow is cutting in on his margin of safety. I—should—say. Uses round iron in his bridge, don't he?'

"Then the next man stepped up, and after the usual ten-minute course in civil

### Sprue-Cutter.

We present herewith an illustration of a useful tool known as a sprue-cutter, and designed for use in brass foundries for cutting castings from the gates. It is operated by foot-power and is built to take in a large range of work, having a depth of throat from the cutting-edge of 10½ inches and a space up and down back of the slide and die-bed of 12 inches. The height over all is 5 feet, and its shipping weight about 570 pounds. One of the important features of the machine is the simplicity of its cutting-dies and the easy manner in which they can be repaired or replaced. They consist of two pieces of unplanned tool steel, ½ x 1 inch, each about 5 inches long, ground to proper bevel for cutting and then hardened. The machines are substantially built, and are said by parties already using



SPRUE-CUTTER, BUILT BY JOHN ADT & SON.

engineering furnished free to the commission on account of official position, he said, the instant that his roving sight happened to be riveted by the glaring defect in the Union plans:

"Holy smoke!"

"What's the matter?" asked the bridge commissioners.

"Nothing at all, gentlemen; nothing at all."

"Anything wrong with those plans there?"

"Gentlemen, if there was anything wrong you would have to find it out from somebody else besides me," and he went out.

"After the commissioners had been subjected to ten more such experiences they threw out the Union plans and there were 13 commissions paid for one contract."

It is officially denied that the capital of the National Lead Trust has not been increased from \$83,000,000 to \$100,000,000

them to be superior to anything heretofore offered for the purpose. They are manufactured by John Adt & Son, New Haven, Conn.

Carnegie, Phipps & Co., Limited, of Pittsburgh, call attention to the existing classification in force on all railway lines east of the Mississippi River, under which material over 20 feet in length is billed at first-class rates, on a minimum of 1000 pounds for each shipment. When the weight ordered is sufficient to yield a freight charge at the iron or steel rate equal to the amount obtained for 1000 pounds at first-class rates the ordinary iron or steel rates apply. Carnegie, Phipps & Co., Limited, allow the iron and steel rate on actual weight only where their prices cover delivery at destination.

The total foreign trade of Japan during the first half of the present year was valued at \$61,152,147.20; imports, \$30,345,530.52; exports, \$30,806,616.68.



## Pig-Iron Warrants.

### Listing on the Stock Exchange.

The American Pig Iron Storage Warrant Company, of which G. H. Hull is president, have sent out the following circular under date of the 16th inst.:

We hand you herewith circulars just issued by the New York Stock Exchange, giving the rules, &c., adopted by them to govern the sales of pig-iron warrants upon the floor of the Stock Exchange. At present only 4 grades and 15 brands of iron have been recorded for sale. Additional grades and additional brands will be recorded from time to time as circumstances may require. In the list of irons recorded as good, merchantable brands are included only those for which warrants are now in existence or likely to be issued at an early day. Other brands will be added to this list, and furnaces desiring to put their brands in a position to sell on Stock Exchange are requested to forward to the warrant company hand samples of their various grades. The matter of placing different brands on Stock Exchange will be attended to by the warrant company without cost to furnace, and as numerous parties have expressed their desire to purchase iron by warrants it is believed that the sale of warrants will be promptly made and in as large quantities as they may be offered by the furnace interests.

Furnaces can instruct sales of warrants made by their regular agents, and the warrant company will give to these agents all information and assistance necessary to enable them to effect sales. Furnace companies having no agents through whom this business can be satisfactorily done can send their authority for sales direct to the warrant company, and the warrant company will put it into the hands of commission houses who are fully equipped for these sales. Furnaces who do not wish to prepare warrant yards until after iron has been sold to go into said yards can sell for delivery "at sellers' option" within 60 days, which will give them time to prepare their yards and take out warrants before time to deliver.

The documents alluded to in the above letter are, 1, the following set of rules governing the sale of pig-iron warrants, issued by the Committee on Unlisted Securities of the New York Stock Exchange:

**Section 1.**—The warrants shall be the issue of the American Pig Iron Storage Warrant Company. Each warrant shall be for 100 tons of pig-iron, and but one brand of iron and one grade of iron shall be covered by the same warrant.

**Sec. 2.**—All bids and offers shall be for lots of 100 tons.

**Sec. 3.**—All sales of, or contracts for, warrants (unless otherwise specified—see Section 6) shall be understood to be for No. 2 foundry iron (or its equivalent, as provided in Section 4), of a brand recorded by the exchange as a good, merchantable brand, delivered in New York (or its equivalent, as provided in Section 5).

**Sec. 4.**—Any grade of iron whose relative difference in value, as compared with No. 2 foundry, which has been recorded by the exchange, may be delivered on contracts (in which a special grade is not specified), at such difference in price as stands recorded by the exchange at the time of delivery.

**Sec. 5.**—The equivalent of New York delivery shall be by warrants for iron stored in any warrant-yard of the American Pig Iron Storage Warrant Company, less the rate of freight recorded by the exchange as current from said yard to New York.

**Sec. 6.**—Sales of or contracts for warrants covering a special brand, or a specified grade, or special place of delivery, may be made, in which case only a warrant for the brand, grade and delivery named can be delivered on such sales.

**Sec. 7.**—A storage charge of 2 cents per ton per month or fraction of a month, to run from the first of the month following the date of the warrant, will be payable at the time of its surrender. The accrued storage on warrants shall be deducted from the price, in the same manner as the freight, at the time of delivery of the warrant.

**Sec. 8.**—There shall be kept by the exchange:

1. A record of such brands as are considered good, merchantable brands.

2. A record of the official difference in value fixed by the exchange between No. 2 foundry and other grades that are deliverable.

3. A record of the rates of freight from different warrant-yards to New York.

The second paper alluded to is the following "warrant bulletin," sent out by the American Pig Iron Storage Warrant Company:

Each warrant must be—

1. For 100 tons pig-iron.
2. For a good, merchantable brand.
3. For No. 2 foundry or its equivalent.
4. New York delivery or its equivalent.

#### EQUIVALENT OF NO. 2 FOUNDRY.

No. 1 foundry is deliverable at 50 cents per ton above No. 2 foundry.

No. 3 foundry is deliverable at 50 cents per ton below No. 2 foundry.

Gray forge is deliverable at \$1 per ton below No. 2 foundry.

Good, merchantable brands.	Location of yards.	Reduction from N. Y. price to make equivalent to N. Y. delivery.
		Per ton.
Sloss.....	Birmingham, Ala.....	\$3.75
Mary Pratt.....	Birmingham, Ala.....	3.75
Williamson.....	Birmingham, Ala.....	3.75
Alice.....	Birmingham, Ala.....	3.75
Trussville.....	Birmingham, Ala.....	3.75
De Bardeleben.....	Bessemer, Ala.....	3.75
Ensley.....	Ensley City, Ala.....	3.75
Ivanhoe.....	Ivanhoe, Va.....	3.05
Woodstock.....	Anniston, Ala.....	3.86
Lady Ensley.....	Sheffield, Ala.....	3.96
Citico.....	Chattanooga, Tenn.....	3.75
Eureka.....	Oxmoor, Ala.....	3.75
Woodward.....	Wheeling, Ala.....	3.75
Crane.....	Catasauqua, Pa.....	.70
Cameron.....	Emporium, Pa.....	2.00

This "bulletin" contains some features which will cause some surprise on the part of the trade. In the New York market, at least, No. 1 foundry usually commands not less than 75 cents and very often \$1 more than No. 2. It is noted, too, that the freight rates from Birmingham evidently do not include the usual switching charges of \$2 per car.

**Ore Shipments.**—The weekly shipments of ore from the lakes continue to exceed those of the corresponding weeks of last year, although they are not as large as a month ago. Ore is now going forward at the rate of 225,000 tons a week, and there remain two months of the shipping season, with a trifle over 5,000,000 tons already sent by water since the opening of navigation last April.

Ferdinand Schlesinger, of Milwaukee, representing the Bleichroder German Syndicate, has secured an option for the purchase of the Bessie Mine, at Humboldt, Mich., and now holds the refusal of a num-

ber of the best non-Bessemer hematite iron mines of the Marquette range, after purchasing the six leading mines of the Menominee range. The purpose of the syndicate is apparently to buy all the leading non-Bessemer mines of the Lake Superior district.

### An Elevated Railroad in Chicago.

The Chicago *Tribune* of the 14th inst. contains the following statement regarding an elevated railroad to be built in that city on the Meigs system:

"Col. M. H. Alberger says that the Lake Street Elevated Railway will be running trains from Canal street to Western avenue by December 28. He is the senior member of the firm of Alberger & Fitzgerald, who are the contractors to whom the company have let the construction of the road. Work on the excavations and masonry for the foundation-posts will positively be commenced a week from next Monday at a point on Lake street near Clinton. The ordinance of the company gives it the right to build and operate an elevated railroad from Canal street west to the city limits, and the language of the ordinance makes it apply to the new city limits.

"The contract for the iron-work of the superstructure has been let to the Philadelphia firm of A. & P. Roberts & Co., of the Pencoyd Iron Works. The contracts for the excavation and masonry of the foundation work will be awarded to firms in this city. For this work 20 proposals for bids were sent to as many firms of contractors last evening, and the successful bids will positively be closed next Wednesday, work to commence on the Monday thereafter.

"The company have given a mortgage upon the road for the amount of \$3,000,000 to the Farmers' Loan and Trust Bank, of New York, as trustee for the guarantee of the bonds of the construction company.

"The builders of the road expect to be able to bring their line eastward of the river by running the track over a double-decked bridge. They have given heavy bonds to complete and operate at least two miles of the road by January 1, 1890, and to do this they say they will have to commence the foundation work within the next fortnight."

Another Chicago newspaper prints an interview with Colonel Alberger, in which the following additional facts are given:

"I have secured the services of W. S. L. Bailey, formerly chief engineer of construction for the Chicago City Railway Company, who will be our street superintendent."

"Who are the officers of the company?"

"Patrick H. Rice, of the Empire Distilling Company, is president; O. W. Bruner, secretary, and M. C. McDonald, treasurer. I don't know who the directors are.

"It is a significant fact," he continued, "that while the old New York 'L' road was bonded for about \$900,000 a mile, the second New York road for \$550,000 a mile, and the Brooklyn road for \$675,000 a mile, the Lake street road will be bonded for only \$200,000 a mile. That's because we are building it to operate and not to sell."

"Where will your office be?"

"The office of Alberger & Fitzgerald will be Room 18, northeast corner of Lake and La Salle streets, and there you can get all the information you want after to-morrow."

Lord Randolph Churchill, in a recent speech, referred to the London strikes as a natural outcome of excesses into which the employers had fallen of extracting from the laborers an undue amount of labor for an insufficient wage.

### Faulty British War-Ships.

Naval officers here and others who have had to do with constructing naval vessels find much to encourage their faith in the American navy and console them for what appeared to be bad failures in marine architecture in the report of the latest English naval maneuvers, which has just reached the Department. This report is entitled to weight, as it was made by the four admirals commanding the squadrons.

As to torpedo-boats, they find that these boats are of great value to the blockaded but illly adapted to blockading work. Their machinery is constantly in need of repairs and they require frequent attention in the matters of water and coal. The deterioration of their machinery soon took away from the speed which constituted their principal value. Touching the larger vessels, the report says that from all sides during the maneuvers came complaints of defective machinery. The squadrons were constantly impeded in their speed and movements by "lame ducks" needing repairs. The failure to realize the speed at which the ships were rated (from 10 to 17 knots) was one of the most disappointing features of the maneuvers. The best speed the Rupert could make at the very beginning was 8 knots. The Shannon kept up 9 knots with difficulty, and another iron-clad dropped astern making less. The Infexible also fell behind from a break in the engine. The Agincourt, an old ship, was steaming easily at the time under two boilers. The old ships, in fact, seem to have done very well. The vessels that appeared to travel with the greatest ease and least smoke were the Black Prince, built in 1861; the Hercules, built in 1868, and the Devastation, in 1871. The Hotspur, Northampton and Active (rated as 16-knot ships) had difficulty in keeping up 10 knots.

Almost every one of the fast cruisers failed to steam up to the nominal speed or to maintain a maximum steam-pressure when it was reached. The Mersey (an 18-knot ship) steamed at 14½ knots, but had to slow down for several hours to clean tubes. The Mercury was the only cruiser in the first squadron capable of making 16 knots for 48 hours. This ship was built to compete with the Wampanoag and other fast boats built by the United States at the close of the war. The Mohawk class failed in boilers and tubes and the Raccoon practically broke down. The Archer and Cosack had their boilers retubed before they had been three months in commission. These are types for our new 2000-ton vessels, but the machinery has been improved in design and durability. The Serpent was almost constantly under repairs in port. An unsuccessful effort was made to introduce like machinery into the new practice ship for Annapolis. The Rattlesnake class proved to be entirely too delicate for rough work.

The Scovill Mfg. Company, of Waterbury, Conn., have begun the manufacture of articles in their line from aluminium. There have been made, to show the finish of the metal, spoons, paper-knives, ladles, crumb-scrapers, trays, table-ware of various kinds and some fancy articles, such as match-boxes, clock cases, fancy buttons and the like. The metal is being produced under the Hall patents by Hunt & Clapp, of Pittsburgh, Pa.

The following list of papers is announced for the Paris meeting of the Iron and Steel Institute: "Notes on the Iron and Steel Manufacture in France in 1887, as Illustrated by the French Exhibits at the Paris Exhibition," by Professor Jordan,

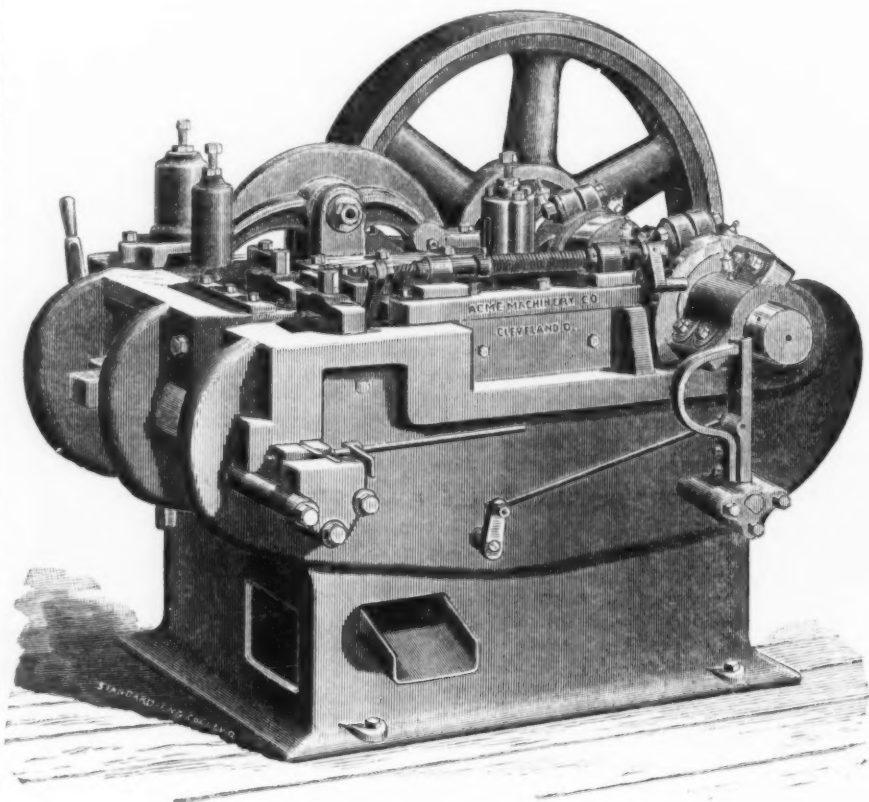
Paris. "On Gaseous Fuel," by Sir Lowthian Bell, Bart., F R.S., Middlesborough. "On Alloys of Iron and Silicon," by R. A. Hadfield, Sheffield. "On the Effect of Tungsten on Mild Steel," by A. E. Tucker and T. W. Harbord. "On a New Form of Siemens Furnace, Arranged to Recover Waste Gases as well as Waste Heat," by John Head, M. Inst. C. E., London, and P. Pouff, Nevers. "On the Robert Bessemer Process," by L. Garrison, Philadelphia.

### The Standard Header.

The machine we illustrate herewith has just been brought out by the Acme Machinery Company, of Cleveland, Ohio. It embodies the best movements and construction which have been used and found valuable in their factory practice during a

the machine. Cast-iron gibs, E E, being used on each side of the slide insure perfect alignment during years of service, with the added certainty that should the steel ways ever become worn they could be trued up in a short time without the trouble and expense of dismounting and removing the entire machine to the machine-shop.

The dies are closed by the toggle-joint movement, Fig. 2, the center toggle-block O being actuated by a plane or wedge of easy incline, resting upon a reciprocating slide, V, Fig. 3, driven by an eccentric and connection from the main shaft. This slide has the same style of steel ways, C C, D D, G G, and gibs, F F, as are used on the heading-slide. The center toggle-block O and movable die-block M are returned to their normal position by a rocker-arm provided with a roll on its rear end, engaging with a return incline, W, on the upper and rear end of toggle-slide.



STANDARD HEADER, BUILT BY THE ACME MACHINERY COMPANY.

period of over 25 years. Great care has been taken to overcome the destructive shocks given the die-closing mechanism by the old practice of using cams and the equally injurious torsional strains to which some new machines are subject where side-shafts are used to operate the toggle movement. The bed is made in the box form, with three deep trusses, shown in Fig. 4, running through its entire length, the box legs being a continuation of the outside trusses. This form gives great strength and avoids any chance of the bed breaking under the bearings or splitting through the center of the machine. The eccentric shaft, of forged iron, is carried in three bearings 8 inches long and 5½ inches diameter. The face of the bearings being inclined toward the front of the machine at an angle of 60° brings the thrust of the forging tools and the die-closing mechanism against solid metal and relieves the main caps and cap-bolts from all strain. The heading-slide T is unusually long and is 8 inches deep, supported on hardened and ground tool-steel ways, A A, 30 inches long and 2½ inches wide, which rest on similar strips, B B, attached to the bed of

The toggle-arms N N are of tool steel, 2½ inches diameter on their ball ends and 6 inches long, working in a radius of only 2½ inches. The ends of both arms are let into solid steel blocks, and besides having wearing surface of over two-thirds their diameter and their entire length, are further supported by steel pins 1½ inches diameter passing through their center and held in place by front and back plates. The movable die-block is provided with and rests on steel ways K and L in the same manner as the main slides.

The dies and punches are of novel construction and designed to turn out perfect work with few blows, avoiding the constant and expensive repairs necessary to the slides and connections of hammer machines. Track-bolts, plow bolts, rivets and many other forgings are cut from the rod by the shear in the rear of the dies. The machine is also provided with effective and simple outside shears, which can be used for cutting up stock or for cutting off work from the bar after forging. Back of stationary toggle-block is placed a relief-wedge, R, which can be adjusted to sustain any required pressure and which



will yield to any unusual strain or shock, giving an elastic blow to the forging-dies and also preventing any breakage of machine or parts by careless operator allowing cold work getting between the dies or out of the grooves. The same system is used in connection with the heading-

### Coke Operators Organizing.

A number of the smaller coke operators in the Connellsville region have decided to organize as the Connellsville Coke Exchange. John F. Acheson, formerly secretary of the old coke syndicate, has

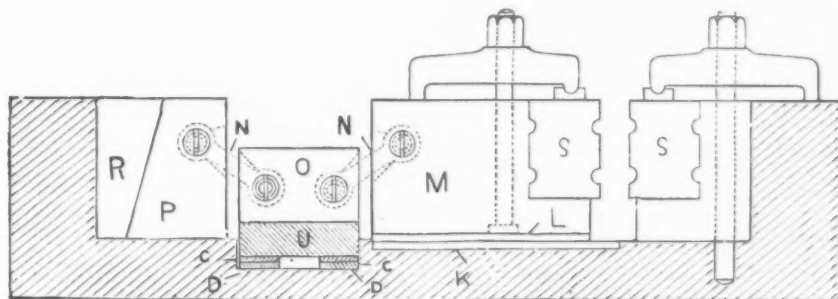


Fig. 2—Showing Toggle-Joint Movement.

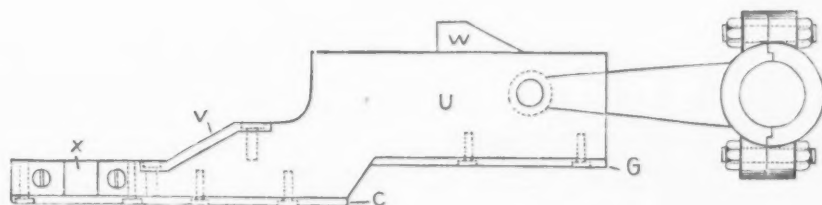


Fig. 3.—Wedge Operating Toggle.

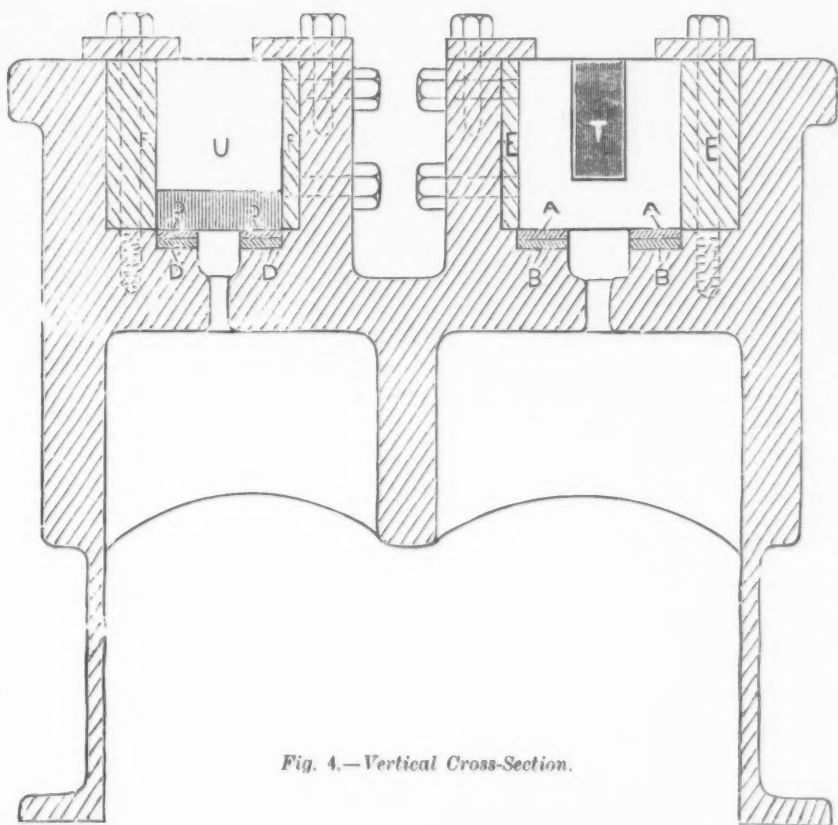


Fig. 4.—Vertical Cross-Section.

punches and is placed on the heading-slide in rear of tools. Stationary die-block, movable die-block, toggle-blocks and toggle-arms are all steel. The stock-gauge is also a new feature, remaining in front of the dies until they are entirely closed and then moving out of the line of the heading-tools with a smooth and easy motion in less than one-thirtieth of a revolution of the machine. The illustration is from their 1½-inch standard machine. Weight of machine complete about 13,000 pounds.

been appointed general agent of the new combination, with headquarters in Pittsburgh. Each operator or firm entering the exchange will have to subscribe capital stock to the amount of \$5 for each oven owned or that may be afterward built. Each subscriber will be entitled to representation in the directory. Each operator is authorized to sell his product to the best advantage, and is required to give a monthly statement of tonnage and price. Five cents per ton is to be deducted from the amount of each statement

for a reserve fund to pay the expenses of the exchange and to cover losses, if there be any. If the surplus fund becomes too large the directors are authorized to award a dividend out of it. In the event of scarcity of cars or other impediments the shipments shall be pro rata on the number of ovens operated, and in like manner each operator is to curtail production when deemed necessary by the directory. The latter are bound to protect the exchange and their members from losses on contracts by reason of strikes or unavoidable accidents. Subscribers can withdraw on the submission of evidence of a bona fide sale of plants. The exchange reserve the right to purchase the stock of the withdrawers with accrued profits at par. The following firms are in sympathy with the movement and are expected to sign the agreement: Pennsylvania Mining, Mfg. and Supply Company, Anchor Works, 100 ovens; A. C. Cochran & Co., Buckeye Works, 160 ovens; J. Newmyer & Sons, Cora Works, 42 ovens; J. R. Stauffer & Co., Dexter Works, 40 ovens; Stauffer & Wiley, Home Works, 20 ovens; J. W. Overholt & Co., Emma Works, 36 ovens; A. C. Overholt & Co., Overton Works, 110 ovens; Fairchance Furnace Company, Fairchance Works, 90 ovens; Fayette Coke and Furnace Company, Fayette Works, 130 ovens; E. A. Humphries, Great Bluff Works, 16 ovens; Kyle Coke Company, Kyle Works, 137 ovens; Pennsville Coke Company, Kyle Works, 127 ovens; Pennsylvania Coke Company, Pennsville Works, 92 ovens; Percy Mining Company, Percy Works, 62 ovens; J. M. Reid, Uniondale Works, 76 ovens; Hecla Coke Company, Hecla Works, 272 ovens; Calumet Coke Company, Calumet Works, 225 ovens; Mutual Mining and Mfg. Company, Mutual Works, 140 ovens; Robert Hogsett, Lemont Works, 134 ovens, and Mt. Braddock Works, 130 ovens; total, 2002. B. F. Keister & Co., Franklin Works, 50 ovens, will also probably come in, making the exchange's total ovens 2052.

Extravagant predictions are made respecting the future of Great Falls in Montana, the natural center of an extensive coal and mining region, where the Montana Smelting Company's works are located. The water power available is of a character supposed to be nowhere surpassed on this continent. A writer says: "There are a succession of falls in the Upper Missouri—the Black Eagle Falls, the Rainbow Falls, the Crooked Falls and the Great Falls—all of which are almost as utterly unknown to the American people to-day as they were nigh a hundred years ago, when Lieutenants Lewis and Clark were commissioned by Thomas Jefferson to make their historic journey to the Northwest." The city was founded three years ago by an ex-mayor of Minneapolis, and now has a population of 2500.

We are indebted to Sidney D. Maxwell, superintendent of the Cincinnati Chamber of Commerce and Merchants' Exchange, for a copy of a very handsome volume of the dedicatory exercises at the opening of the new building of that body on January 29 and 30. The volume is very handsomely printed and contains a very fine engraving of the massive building, one of Richardson's latest creations.

It is reported on excellent authority that the Phoenix Iron Company have secured a contract for the erection of six miles of elevated railroad in St. Louis.

A chemist of Charleston, S. C., named Pankin, exhibits a very fine product of the ramie plant, obtained by an improved machine for decortication.

## THE WEEK.

The Century Club will erect a building of brick and granite on Forty-third street, near Fifth avenue, for \$150,000.

The National Board of Steam Navigation will hold its annual meeting in Pittsburgh on October 1 and 2 next.

The yards have been taken off all the North German Lloyd steamers, it having been decided that they were useless appendages.

The old Pennsylvania Canal, built 60 years ago, and which for a long time was an important channel of trade, will soon be abandoned.

The proceedings in the cases of Simpson & Watkins, coal miners and shippers of Scranton, Pa.—one against the Delaware and Hudson Canal Company and the other against the New York, Lake Erie and Western—involving the question of rates, have been discontinued by the Interstate Commerce Commission on the mutual agreement of all parties. The case of Hoag & Tichener vs. the New York, Lake Erie and Western, involving similar questions, has also been settled.

The Boston *Herald* affirms that if a vote could be taken in the State of Massachusetts there would be 10 to 1 in favor of reciprocal trade with Canada.

Some peculiar book-keeping was developed by an investigation at Providence into the affairs of the bankrupt firm of Brown, Steese & Co., whose failure involved several manufacturers in disaster. According to a report in the Boston *Herald*, the assignees "have thus far succeeded in straightening out the wool account so far as to get hold of \$100,000 worth out of the \$700,000 appearing to the credit of the firm on the books of the concern. The amount of the firm's notes for which, it was said, no offsets could be found was \$1,700,000.

A letter can now be sent around the world in 69 days via Vancouver.

Another fast trip across the Atlantic has been made. The Inman Line steamer City of New York, which arrived at this port 11th inst., broke her own record by an hour, making the run of 2777 miles in 6 days, 4 hours and 17 minutes. The best day's run was on Monday, September 9, when 493 miles were covered.

New Orleans editors are suspicious of the combination of six commission firms in New York calling themselves the "Orange Growers' and Dealers' Protective Association." The whole thing, we are told, "seems like a conspiracy to freeze out the hundreds of outside dealers in New York and other leading Northern cities and to get the whole Florida orange crop in a few speculative hands." Should the Florida orange-growers be induced to dismiss the honest dealers they have already found in Northern cities and depend entirely on a new concern, it is surmised that they would place themselves in the hands of a monopoly who would squeeze them like lemons for a church fair.

Thirty thousand immigrants arrived at Philadelphia during the year ending June 30. In nationality the larger part were about equally divided between Ireland, England and Germany.

The convicts of the Tennessee Penitentiary were on Saturday leased by the Tennessee Coal, Iron and Railroad Company for \$100,000 per annum. The convicts will be employed in the company's mines.

The havoc caused by the recent cyclone is beyond computation. Thirty-seven lives are reported lost, the crews of several coal-laden schooners in Delaware Bay having

been swept away. The losses of property at Coney Island and Atlantic City alone are computed at upward of \$1,000,000. Manhattan Beach property suffered to the extent of \$100,000. The loss of vessel property at the Delaware Breakwater will reach, it is thought, \$600,000.

The new steam cruiser Atlanta outrode the entire gale last week in the open sea and demonstrated her sea-worthy qualities to an extent never contemplated in her orders.

Collis P. Huntington, the railroad president, announces the intention of making his daily newspaper in this city the special organ of the railway interests of the country.

Connecticut is favored with a remarkably fine tobacco crop.

The Alaska steamer Ancon, owned by the Pacific Mail Steamship Company, which has met with disaster, is the last of the old-time steamers on the Pacific Coast. She has been in service since 1865.

The investigating committee sent out by the United States Senate to visit arid lands and take testimony in regard to irrigating them think favorably of a plan for storing a vast quantity of water in the mountains near El Paso in different basins and dividing this water with Mexico according to some agreement with the Mexican Republic, a portion of the water to run at all times from the reservoirs into the Rio Grande River channel.

All the machinists of the United States are to form a national union for the mutual protection of its members against the employers. The movement was originated in New York City, and F. Kellar, the secretary of an organization called the United Machinists, has sent circulars to all the smaller unions asking them to send delegates to a convention which is to be held in New York in October.

The Mexican Minister of Public Works, Señor Pacheco, is forming a company for the extensive culture of ramie.

Alfred B. Shepperson, of "Cotton Facts," gives the figures of the cotton crop for 1888-89, as compiled from reports received from the various cotton exchanges, railroads, mills, &c., as follows:

	1888-89.	1887-88.
	Bales.	Bales.
Net receipts at ports .....	5,546,818	5,612,448
Net overland shipments.....	943,221	1,001,261
Taken by Southern mills from interior towns and planters.....	449,245	433,124
Total crop.....	6,939,284	7,046,833
Average weight of bales, pounds.....	497.06	488.05

The excess in weight makes crop equal to 7,067,271 bales of same weight as previous crop.

The greatest salmon river in Alaska, according to an official report to the Fishery Commission at Washington is Karluk.

A street railway franchise was sold in St. Louis to the highest bidder and brought \$314,000 cash.

Some of the more recent estimates place the wheat crop at 550,000 bushels. This is over 50,000,000 in excess of the yield figured out by the Department of Agriculture a month ago. The most conservative authorities are pretty well agreed now in the judgment that the 553,000,000 crop of 1884, which has hitherto headed the list, has been nearly or quite equaled this year.

Cheyenne, the capital city of Wyoming Territory, with its population of 7000 or 8000, is recovering from the prostration that followed the destruction of cattle on the plains three years ago, and will soon become an important railroad center. A correspondent says: "Cheyenne must give up the hope of growth by the cattle

business alone. Fortunes are to be made hereafter in agriculture, in stock-raising, in oil, coal, iron, glass, soda. All of the eggs are not to be in one basket. The Union Pacific have made plans for shops that will cost nearly \$500,000, and that will employ, when built, about 500 men to begin with and 1500 later on."

S. B. Armour, head of the packing company at Kansas City, says there is very little profit in beef-packing; that it figures up 60 cents a head as a very liberal estimate. The balance-sheet for the year shows that he had killed 144,800 head of cattle that netted just 33 cents per head profit. He employs 1200 men daily.

The valuation of property proposed to be taken by the Government for the new appraiser's warehouse amounts to \$860,000, of which \$476,000 is for the Bowling Green front and the remainder for lots on State and Whitehall streets, comprising in all 17 plots of land which now has 14 owners.

Ireland affords some indications of the return of a solid prosperity. Although the amount of government bonds held in Ireland is less than formerly, due perhaps to the poverty of landlords whose rents have been reduced, the deposits in post-office savings-banks have been steadily increasing from year to year. In 1873 the total amount of the deposits in these banks was £845,550. In 1877 it had grown to £1,256,724. In 1882 there is a further increase shown to £1,925,460. In 1887 the total had risen to £2,933,032, and by June 30, 1889, to £3,372,000. The material improvement thus indicated has been shared by every province and by every county in Ireland. The receipts of Irish railways are also much larger than they were in 1888.

The record stands 46 failures of woolen-manufacturing concerns in 1889 prior to August 29, as compared with 35 in a like portion of 1888. But comparison of aggregate liabilities shows an increase of far more than 32 per cent., the proportion of increase in number. The liabilities of failing woolen-manufacturing institutions this year amount to \$6,920,000, as compared with \$2,480,000 last year, and the total assets to \$5,173,000, against \$1,355,000 in eight months of 1888.

American consuls in Brazil report that the practice of falsifying trade-marks of certain well-known and popular articles of American manufacture is prevalent in that country. In corroboration of this statement the New York Board of Trade and Transportation exhibit a sample package of cotton prints made in England and having upon it the trade-mark of the American makers.

Owing to defective construction the Kansas State Capitol building must be altered in the dome and main entrance, at a cost of \$25,000.

The Congo railroad, with a capital of \$5,000,000, gives promise of realization.

An agent of the Mexican Government is in St. Louis to arrange with the Lucas Steamship Company for a series of stops at ports on the Gulf and promises a subsidy equal to that given by the Argentine Republic.

The ship Ellesmere sailed from Philadelphia on Saturday with 1,031,900 gallons of oil for Calcutta, the largest cargo ever carried in a sailing-vessel.

A memorial on railways by the Governor of Kiangsu says that since he left Peking he had become convinced of the necessity of railways. He urges the construction of a line toward the Russian frontier on the north in order to be able to transport troops thither in case of an invasion from China's northern neighbor, which he much



dreads. He also advocates a railway to Yunnan, to develop the copper mines, and to secure the western frontier he thinks it might be desirable to push the iron road to Kashgar.

A Boston paper refers with approval to a statement made before the Senate Committee that "while during the last ten years there had been a gain of more than 100 per cent. in the insurable wealth of the country, the increase in the insurable wealth of Boston, as represented by its business industries, had been but 21 per cent.," and from these premises draws the inference that Boston suffers from artificial trade restraints, which impel investors to use their money in developing the trade resources of distant localities.

The German manufacturers at Mannheim have been making "American clocks" so cheap as to undersell the foreigners, but the quality is so bad that the output of the factories is falling into disrepute.

Both of the submarine cables of the Western Union are broken, and as the cable steamer Faraday, on which the company depend to make repairs, is engaged on other important service it is impossible to say how long the interruption will last. Meanwhile their business is done through an arrangement with other lines. Two new cables to Nova Scotia, soon to be laid, will cost \$1,000,000.

Los Angeles, in Southern California, is one of those places in which Eastern men have freely placed their coin. Besides, there are 60 paper towns in the same county, in some of which "a cactus would blush to grow." Word now comes that the owners are asking 20 per cent. reduction from the assessment roll, and that property covered by a 50 per cent. mortgage is voluntarily abandoned. In other words, "the boom has burst."

It is expected that the Canadian Northwest will have for export this year 14,000,000 to 15,000,000 bushels of fine wheat, of which total the Canadian Pacific Railway expect to handle 12,000,000 at their Fort William elevators and over their boat line to Owen Sound. The rest the Canadian Pacific Railway are willing to admit may come out via the Northern Pacific and Duluth.

### Roasting Iron Ore.

Dr. Sterling G. Valentine, of Lebanon, Pa., has made a valuable series of experiments in the desulphurization of pyritiferous iron ores, from which he draws the following conclusions:

1. Heat alone, without access of air, can remove, at best, only one-half of the sulphur present.
2. Atmospheric oxygen is absolutely necessary for a proper desulphurization.
3. Even at a low heat, ore is properly desulphurized if air can gain access freely to the  $\text{FeS}_2$  in it.
4. Sulphate of iron can be decomposed by heat equally well with or without air.
5. In order that the residuum of sulphur in roasted ores may consist, so far as possible, of sulphates, the roasting must be done under free access of air.
6. Fusion or sintering of ore is likely to prevent any further desulphurization.
7. Sintering does not allow much of the remaining sulphur to be in the form of sulphate.
8. Fusion, hence, should never occur in roasting except after continued heating in air at a lower temperature.
9. Ores cannot be properly desulphurized in the upper part of the blast-furnace.
10. An efficient roaster must allow easy control of heat, abundant air access to the hot ore, and rapid removal of the products of combustion.

## MANUFACTURING.

### Iron and Steel.

Jones & Laughlin, Limited, at Pittsburgh, are demolishing an old stack at their American Iron and Steel Works, on the South Side. The stack stood on the site of the old puddle-mill, and was a part of the first plant erected by the firm. It was 160 feet high.

J. W. Walker, proprietor of the Shiffler Bridge Works, at Pittsburgh, has been awarded the contract for the erection of an iron and steel bridge, 1600 feet long, across Casey Creek, Ky., by the Richmond, Nicholasville, Irvine and Beattyville Railroad. The contract amounts to \$100,000.

The oldest blast-furnace in the United States is the Cornwall Charcoal Furnace, at Cornwall, Lebanon County, Pa., owned by the Cornwall Iron Company, Limited. It was built in 1742 and has never been rebuilt. It has always been kept in good condition and could be put in blast at once if desired. The size of the stack is 31 x 8 feet. The furnace has been in the possession of the Coleman-Freeman family for over 100 years.

The annual meeting of the stockholders of the Jefferson Iron Works, of Steubenville, Ohio, was held in the office of the company on Saturday, the 7th inst. The reports of W. H. Wallace, president, and Geo. P. Harden, secretary, of the business done during the past year were submitted, after which the following directors were elected: Wm. H. McClinton, Calvin B. Doty and Wm. R. E. Elliot, of Steubenville; Baron I. F. Lagerfelt, of Pittsburgh; Spaulding K. Wallace, John Rihelclafer and Joseph Bell, of Wheeling. The only change from last year was the substitution of Calvin P. Doty, who had declined to act during the past year, in place of Wm. H. Wallace. The board then organized with the election of Spaulding K. Wallace as president and Baron Lagerfelt as vice-president; the board also appointed Geo. P. Harden as secretary and Wm. H. McClinton as manager of the mill.

The Phoenix Iron Company, of Phoenixville, Pa., have increased the wages paid to their puddlers 25 cents per ton and all mill and yard wages except those paid for common labor 5 per cent. For some time past the tendency in wages has been upward, and other concerns by raising the compensation paid their employees have been attracting the hands employed in the Phoenixville mills. The Phoenix Iron Company, it is believed, have determined to put a stop to this defection and with that view announced the above advance.

Shoenberger & Co., proprietors of the Juniata Iron and Steel Works, at Pittsburgh, will shortly commence the erection of an additional six-ton converter to their Bessemer plant.

Isabella Furnace, at Barneston, Chester County, Pa., which was destroyed by fire six months ago and then rebuilt, resumed operations on September 2.

The entire plant of the Belmont Nail Company, at Wheeling, W. Va., consisting of blast-furnace, plate-mill, nail factory and puddling department, is being operated to its utmost capacity. The last-named department, consisting of 14 puddling-furnaces, was put in operation last week, after an idleness of more than two years.

The Colorado Coal and Iron Company have discontinued their rolling-mill at Denver, Col., and have concentrated all their works at Bessemer, near Pueblo. Extensive repairs in the rebuilding of heating furnaces and in the substitution of machinery for manual labor have recently

been made at the rolling-mills and steel plant, and improvements have also been made in the iron-pipe works, placing the whole establishment in fine condition. The officers now are: Edward J. Berwind, president; Henry S. Grove, vice-president, and Thomas E. H. Curtis, secretary and treasurer, Mills Building, New York City; John Dougherty, general manager, Pueblo, Col.; George W. Cook, general sales agent, Denver; and J. B. Nau, superintendent of the steel works, Pueblo.—*Bulletin.*

The blast-furnace is the only part of the plant of the Wheeling Iron and Nail Company, at Wheeling, W. Va., that is in operation at present. The firm have commenced the erection of a sheet mill and this has made it necessary to close down the nail factory for a short time. The dimensions of the new building are to be 127 x 110 feet, and it will be constructed entirely of iron. Among those who have been awarded contracts on the works are the following well-known Pittsburgh firms: Riter & Conley, the iron building and boilers; Mackintosh, Hemphill & Co., the engines; A. Garrison Foundry Company, the rolls and roll lathe, and Wm. Mann, of Martin's Ferry, Ohio, the furnaces and castings for the cranes.

The entire plant of the Etna Iron and Steel Company, at Bridgeport, Ohio, is being operated to its utmost capacity. The new furnaces and gas-producers recently added to the plant and built by the Swindell & Smythe Company, of Pittsburgh, are in operation and giving excellent satisfaction. The furnaces are of the following sizes: The guide-mill furnace 6 feet 3 inches by 14 feet, the plate-mill furnace 7 x 14 feet, and the producers each 12 feet high and 9 feet 8 inches in diameter.

The plant of the La Belle Iron Works, at Wheeling, W. Va., is on full time in all the departments. The annual meeting of the stockholders of the concern was held on Tuesday, the 10th inst., at which the following directors were elected: John Wright, W. T. Burt, A. J. Clarke, John J. Jacob and C. A. Robinson, of Wheeling, and W. R. E. Elliott and H. L. Doty, of Steubenville. At a subsequent meeting of the board C. A. Robinson was re-elected president and C. E. Irwin secretary.

In our issue of the 5th inst. mention was made of an accident at the Homestead Steel Works of Carnegie, Phipps & Co., Limited, at Homestead, Pa., by which five of the employees lost their lives by the boiling over of a ladle containing molten steel. On Tuesday, the 10th inst., the coroner's jury charged with the investigation of the accident rendered the following verdict: "That the bottom of the ladle used to pour said heat was not and had not been given proper time to dry; that Isaac Lane, deceased, who was ladle-man, and N. W. Shade, smelter of No. 2 furnace, were negligent in running said heat of steel into this ladle when it was not in proper condition, and should be censured therefor. The jury recommend that the firm have at least one extra ladle for use around the furnace, and not allow the molds to stand too close to the pit for the safety of workmen in case of accidents of this description."

It is probable that within a short time one of the oldest iron plants in Pittsburgh will be removed to some other point. We refer to the Sligo Iron Works, of Phillips, Nimick & Co., which have been located in that city for many years. For some time this firm have had a desire to enlarge their works. Their business has become so great that it is necessary to do so, but as all the ground adjacent to the works has been bought up by the Lake Erie Railroad they are unable to branch out.

Further than this, the railroad company desire to purchase all the ground on which the Sligo Works now stand for the purpose of enlarging their yards. It has not been definitely settled as yet to what point the plant will be removed, but it is almost certain that the removal will take place.

Mary Furnace, of the Ohio Iron and Steel Company, at Lowellville, Ohio, which has been idle for some time undergoing repairs, resumed operations last week.

All the furnaces of the Pennsylvania Steel Company, at Steelton, Pa., four in number, are in successful blast.

Girard Furnace, at Girard, Ohio, was put in blast November 27, 1886, and it has been in continuous blast ever since, with the exception of about eight weeks, when it was banked on account of a coke strike, and from that time until the 1st of August it has made upward of 140,000 tons of metal. The furnace is in good condition and making from 1100 to 1200 tons per week.

Carnegie Brothers & Co., Limited, proprietors of the Edgar Thomson Steel Works, at Braddock, Pa., shipped last week the balance of an unusual order for steel rails. They were the largest ever rolled in the mills. They are 60 feet long and each weigh 1700 pounds. The rails were ordered by the Pennsylvania Railroad Company and are intended for special bridge work. The plant has previously rolled 60-foot rails and then cut them to 30-foot lengths, but this is the first lot they have finished at 60 feet.

James Hooven, proprietor of the Norristown Iron Works, at Norristown, Pa., under date of the 19th inst., writes us as follows: "We started our plant on the 4th inst., and are running on grooved skelp iron and making several sizes of pipe. Our wages are the same as are paid in Philadelphia. There seems to be a reasonably good business in pipe and we hope that it may continue."

On last Monday the Pennsylvania Railroad Company let the contract for the erection of their new car-shops at Walls Station, about 15 miles from Pittsburgh. The buildings will consist of one brick semicircular repair-shop, 432 feet in diameter; a brick paint-shop, 20 x 84 feet; five iron buildings and a brick office building. When these structures are completed the men employed in the shops of the company now at Torrens and Brushton will be removed to Walls and the old shops may be abandoned.

The Hill Clutch Works, of Cleveland, Ohio, have opened an engineering office at 146 Franklin street, corner of Congress, Boston, Mass.

The Saml. L. Moore & Sons Company, machinists and founders, whose works are situated at Elizabethport and Centerville, N. J., have purchased all the patterns of C. H. Delamater & Co., including gauges, books of record, &c., and are now prepared to build the Delamater wheel.

The Oxford Iron and Nail Company, of Oxford, N. J., have begun a series of improvements in connection with the rolling-mill department of their works. All the reheating furnaces have been equipped with anthracite gas-producers, with results which are pronounced gratifying so far as it has been possible to gauge their effect from a short trial.

The Pennsylvania Steel Company, of Steelton, Pa., have put in a Wenstrom magnetic separator.

Another wire-rod mill is projected at Joliet, Ill., the Illinois Steel Company's mill having more orders tendered than it can fill. It is possible that the proposed

mill may be built by persons now interested in the barb-wire factories of the city. In that event the billets would probably be provided by the Illinois Steel Company.

#### Machinery.

The Avery Stamping Company, of Cleveland, Ohio, have just completed one of the largest hydraulic plants in this country for extra-heavy pressing and stamping of sheet-metals. This company have been and are now doing stamping and pressing of sheet-metals into shapes and forms heretofore thought impossible by leading and experienced mechanics. They make a specialty of this class of work for railroad uses, such as car construction, bridge-plates, &c. This company claim to be the only company in the United States who can put sheet-metal into intricate shapes—for instance, like a cylinder—and keep a uniform thickness all over. They make all their own dies and tools, having a complete pattern and machine-shop, and have facilities for getting out the largest work of this kind ever attempted in this country.

L. F. Seyfert, dealer in machinery, 437 to 441 North Fourth street, Philadelphia, has been appointed the general Eastern agent for the Keasey Wood Split Pulley, manufactured by the Great Western Pin Company, of Toledo, Ohio.

#### Hardware.

The litigation pending for a year over the rebuilding of the Pennsylvania Tack Works, at Norristown, Pa., has been adjusted, and the work of erecting the structures will begin again at an early date. The works were burned down after the tack company had taken possession, but before the papers had been made out, and the tack company contended that the Norristown Improvement Company, who erected the buildings, should bear the loss. Concessions have been made by both parties, and it is thought the new works will be in operation in a few months.

The J. B. Miller Company, of Kent, Ohio, manufacturers of locks and hardware specialties, will increase their capital stock from \$50,000 to \$100,000 on October 1 next. This step has been made necessary by the increased demand which the company are having for their goods, requiring additional room and equipment. The prospects for the future for the locks and specialties made by this firm are referred to as unusually flattering.

In answer to a report that the Union Steel Screw Company, of Cleveland, Ohio, were about to make some extensive improvements in their plant, we are advised by the company that the report has no other basis than the fact that they are building a new barn and wagon-shed.

The first premium was awarded last week to the Clinton Wire Cloth Company, Clinton, Mass., by the Worcester Agricultural Society for painted window-screen cloth, Silver Finish brand, poultry netting and galvanized cloth.

#### Miscellaneous.

The annual meeting of the stockholders of the Westinghouse Air Brake Company of Pittsburgh, was held at the office of the company in Allegheny City last week. Mr. John Caldwell, treasurer, read a statement of receipts and expenditures for the year ending July 31, 1889, and a financial statement showing the condition of the company at that time. An election was then held for president, vice-president and seven directors and resulted as follows: President, George Westinghouse, Jr.; vice-president, Robert Pitcairn; directors, George Westinghouse, Jr., Robert Pitcairn, H. H. Westinghouse, John Caldwell, T. W. Welsh, Alex. M. Byers, W. W. Card. The net earnings of the company for the year were over \$1,100,000, the largest in any year to date.

The Aurora Watch Company, at Aurora, Ill., made an assignment on the 10th inst. to T. H. Day. The liabilities were then reported to be only \$60,000, while they have \$70,000 worth of material ready to make up and over \$50,000 worth of orders on file. It was understood that this was simply a temporary movement to tide the company over momentary embarrassment, and that the factory would run right along as usual. But a greater surprise was in store the next day, when the 300 employees found themselves locked out of the factory and the premises in charge of the sheriff, who had taken possession in the interest of other creditors, and now it is said the liabilities amount to \$200,000, with assets of \$375,000.

The United States Fence Machine Company were organized at Charlotte, Mich., with a capital stock of \$25,000. The company will commence the manufacture of machines for making slat and wire fence.

We received from the Sandwich Enterprise Company, manufacturers of windmills and farm implements at Sandwich, Ill., a very pretty card of invitation to inspect their works during the De Kalb County Fair, which occurred last week. The agricultural machinery made at Sandwich finds its way to almost every civilized country on the globe, and these works are well worth visiting.

#### Establishing Export Companies.

F. G. Pierra, secretary of the Spanish Commercial Union, whose headquarters are in New York City, will accompany the delegates to the Congress of American Nations while on their tour through our principal manufacturing cities, and, as an authorized representative, expects to induce manufacturers to organize and establish export companies as a means of giving American trade with Spanish America an immediate stimulus. Mr. Pierra explained the plan as follows: "It is a deplorable fact that American manufacturers know nothing about the needs of Spanish-American trade. If we were to send an order to an American manufacturer to send a certain amount of miscellaneous goods suitable for such and such a country, I know by experience that they would all be wrong; while, on the other hand, the English and Continental manufacturers make a special study of the needs of the South American countries, also of the methods of transportation, and, as a result, when we send an order to them the goods are just what are wanted. Now, we are going to endeavor to some extent to correct this trouble by getting the manufacturers to form export organizations and put men at the head of them who know what the South American trade needs, and I have great hopes that when I accompany the delegates to the International Congress to the different manufacturers I will be able to show the latter the need of forming an organization. The organization, without going into tedious detail, would involve the establishment of a head office in New York, to be under the management of a responsible man who is thoroughly up in Spanish-American affairs. Branch offices should then be established at Buenos Ayres, Rio Janeiro, Lima and all large centers of South America and the West Indies. At all these offices each manufacturer will have a full set of samples, and consequently buyers can go and pick out exactly what they want, which can be immediately ordered for them. That is the plan in brief, and while I have no doubt that American trade with Spanish America would gradually grow with it, nevertheless this would form an immediate stimulus to the American trade."



# The Iron Age

New York, Thursday, September 19, 1889.

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GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.  
RICHARD R. WILLIAMS - - - HARDWARE EDITOR.  
JOHN S. KING, - - - BUSINESS MANAGER.

## The Situation in Lead.

The conviction seems to be gaining ground, expressed, too, in the rising market, that the forthcoming decision on the Mexican silver-lead ore question will be in favor of those who claim that the importations are unjust and fraudulent. We are inclined to receive with some skepticism the statement of the Rocky Mountain lead-miners that ruin has stared them in the face so long as imports of Mexican ores continued. The pleadings of those who come before our Congress or the Treasury Department often abound in superlatives. While some allowance must be made, the fact remains that at the prices recently prevailing some important deposits of lead ore cannot be profitably worked. Prominent among these is the Maid of Erin, in Leadville, which has very large bodies of lead ore low in silver in sight, but is troubled with an enormous rush of water. It is stated, on the other hand, that the owners of a leading lead mine in another district, who had occasion to close down their workings for special reasons, attempted to aid the cause of their fellows by giving out that the influx of Mexican ores was ruining their business. They resumed long before any decision was announced.

So far as consumers of lead are concerned, they must expect that the stoppage of shipments from the south of the Rio Grande is likely to create a higher range of values for the metal. Last year, according to official reports, the lead contents of the Mexican "silver" ore was 28,000 tons, the total product of the smelters, including the above amount, being about 180,000 tons. Our consumption could not grapple with that quantity, but there would certainly have been shortage without the Mexican supply. The question arises at what prices home production would be so stimulated and consumption so restricted that the two would balance. We believe that the price will prove to be lower than the majority of people in the trade are willing to admit.

Two factors come prominently into play. The first is the gradual cheapening of the cost of laying down the metal in the leading markets. This has been largely due to a very general lowering of freights on ores, coke and base bullion throughout the Rocky Mountains. In fact, in some cases the cutting has been carried to an extreme. Thus ore from the Cœur d'Alene district is being hauled to Denver, over 1000 miles away, for \$4.50. Smelting has been cheapened until in the "valley" in Colorado it costs from \$5.50 to \$6.50 per ton of ore. The cost of desilverizing has been lowered until Missouri River works charge \$16 per ton, paying 95 per cent. of New York prices for the metals.

A second consideration to be taken into account is the rapid development of the Cœur d'Alene section. It is estimated that

in 1888 this new source of supply furnished concentrates containing 22,000 tons of metal, and that this year's record will considerably exceed that figure.

The cutting off of ores from Mexico may be felt, but there is every probability that 4 cents will bring out all the metal which this country needs for the next year or two, since there is enough money in it to pay fair profits to miners, smelters, refiners and the transportation companies.

## Art in Hardware.

In *The Iron Age* of September 5 we printed in our hardware columns a letter from Henry R. Towne, president of the Yale & Towne Mfg. Company, of Stamford, Conn., dealing with a very important question in many branches of metal-work. It is generally recognized by those who have had the opportunity to compare our work with what is being done in Europe that we are not abreast of some European rivals in the grace and beauty of the many metal articles which enter into furnishing our houses and decorating our buildings. To frankly acknowledge that fact and to seek the best means of robbing it of its truth is the first step toward the supremacy for which we must strive.

Overlooking some painful eccentricities, it is evident to any observant person that since the Philadelphia exhibition, which furnished the first impulse, the taste of a good many people has risen to a higher standard. All over the country the public are rapidly developing an appreciation of artistic merit. Those who cater to it skillfully, whether they be manufacturers or dealers, will reap the reward for which all business men strive. We believe that we have passed the period when some clever mechanical device, some neat knack of promoting comfort, was the best and the only selling point. We do not desire to convey the impression that such features have or are likely to lose their attractiveness to the average American buyer. But we do firmly believe that, other things being equal, that article which possesses artistic merit will be given the preference even at a higher cost. Beyond certain narrow limits manufacturers cannot afford and will not undertake to assume the part of educators of the public. It would be an unwise business policy to aim too high. But it is certain that those who are nearest to the buyer—the retail dealers—must make some efforts to promote a movement which is in harmony with the evident tendency of the times if they want to participate in the profits which always come to those who furnish the public with what they want.

For the present, perhaps, the greatest chance of success lies in giving attractive form to the higher class of goods, but the day is probably not far off when even the cheapest grades must be made to cater to more than bold, ugly utility. In sterling and plated ware, jewelry, lamps, glassware and china there has been quite a revolution during the past 10 or 15 years. Any one who will spend a few hours in the shops of any town of moderate size will be quickly convinced of it. The same movement is beginning in other lines closer to the hardware and metal trades, and, what is more significant, it is reaching a far greater fraction of our population.

## The Course of the Sugar Market.

In June last sugar rose in the United States and Europe to figures which had not been reached for 20 years past. In New York fair refining Cuba advanced during the month named to 7½ cents, to recede since to 5½ cents, while in Europe the improvement and later on the decline kept in about the same proportion. The extraordinary rise in June was mainly, if not wholly, brought about by speculation, which centered at Magdeburg, where a sugar ring had been formed which manipulated the market with great success, being strengthened by large orders for beet-root sugar from New York. In July the exceptionally rainy weather spoiled the fruit crops on our Atlantic Coast, curtailing consumption. The great rise was chiefly speculative, but there were some plausible reasons in favor of high prices in June when the statistical position was considered. It was then decidedly favorable, causing the trade on both sides of the Atlantic to stock up freely. The sudden falling off of consumption on this side reversed the state of affairs, and beet-root sugar was reshipped to Germany in large amounts. This gave the signal for the collapse of the Magdeburg sugar ring, which in its sanguine anticipations had gone far beyond its financial depth. While this was going on it was discovered that under the stimulus of a high ruling the seedling of beet-root was vastly increased all over the Continent; the weather was also all that could be wished for, so that a monster beet-root sugar crop of 3,000,000 tons became one of the possibilities, if not probabilities, in Continental Europe. Brazil, Cuba, the British West Indies and Guiana, Java and Philippine Islands, as well as Mauritius, all made similar efforts to produce a large sugar crop, thus counteracting for the time being the still probable statistical exhibit. Nevertheless—as is nearly always the case with a leading staple—the reaction against previous excessively high prices seems to have arrived at a point where it has run into the opposite extreme, so that C. Czarnikow in his weekly report, dated London, August 30, justly remarks:

In times like the present a downward movement is often exaggerated, and as often followed by a sudden reaction. Without doubt the future course of the article will greatly depend upon the result of the coming beet-root crops, the prospects of which are so far satisfactory, but it is quite impossible to give, even at this period of the year, an authentic estimate of the yield; all statements on this head must be considered more or less vague. To one important point I wish to call the attention of the trade, and that is, that even believing in a large yield, it must be borne in mind that the world is comparatively bare of sugar, and the remarkable abstention from buying shown by consumers generally during the last two months cannot fail to have an important effect upon stocks in second and third hands. Hence it is reasonable to expect an early revival after the new beet-root season has fairly opened.

Since the above was written the American markets have been steadily improving, stocks having begun to run low both in the interior and on the coast, causing fair refining Cuba to advance from 5½ to 5¾ cents under a lively consumptive demand. The stock at New York, Boston, Philadelphia and Baltimore on the 12th inst. did not exceed 42,468 tons, as against 79,212 tons on same date last year, 134,610 tons in 1887 and 159,620 tons in 1886. The consumption on this coast since Janu-

ary 1 has been 801,624 tons, against respectively 798,788, 808,582 and 826,717 tons. In Europe and America, Havana and Matanzas included, the visible supply August 31 was only 590,283 tons, against 769,648 tons in 1888 and 873,569 tons in 1887. In other words, if for 1890 big beet and cane sugar crops are in prospect, the stocks are much reduced at present, and prices are moderate enough to stimulate consumption, while general business is prosperous on both sides of the ocean.

The Cuban crop of 1888-89 is officially stated to have been 544,300 tons sugar and 93,860 tons molasses, against 647,860 and 125,460 tons respectively the previous year. So far the outlook there is promising, and it is so in the remaining cane-producing countries. American capital takes an active share this year in sugar production in Cuba by making additional investments in central sugar-houses, and although wages are high, Cuba is likely to turn out a very fair yield, which may not fall short of 800,000 tons sugar and 175,000 tons molasses. The Cuban yield is of prime importance to us. The more sugar and molasses we can get from Cuba, the greater is the amount of goods we shall ship to the island, and the fuller the employment for our steamers and sailing-vessels in the trade despite some competition on the part of British tramp steamers, of which no less than 15 were attracted by high freights recently.

#### The Supply of Old Rails.

The considerable rise in old rails during the past few months has given frequent occasion for the remark that the supply of that class of raw material is being rapidly exhausted. We know that some manufacturers of rail-fastenings, spikes, &c., and makers of common bars regard the situation with uneasiness and that some of them are seriously considering the question whether a far-sighted business policy would not dictate the construction of steel plants. There are few, however, who appreciate the fact that a little more than one-quarter of the whole track mileage of the United States is still laid with iron rails. Poor's figures from the last Manual issued show the following:

Steel and Iron Rails in Track.

Year.	Miles steel rails.	Miles iron rails.	Total miles.	Per cent. steel of total.
1880.....	33,680	81,967	115,647	29.1
1881.....	49,063	81,473	130,536	37.5
1882.....	66,691	74,269	140,960	47.3
1883.....	78,491	70,692	149,183	52.7
1884.....	90,243	66,254	156,497	57.6
1885.....	98,102	62,495	160,597	61.0
1886.....	105,724	62,324	168,048	62.9
1887.....	125,459	59,588	185,047	67.7
1888.....	138,516	52,981	191,497	72.3

In eight years, therefore, iron rails have been removed from about 29,000 miles of track, leaving, however, nearly 53,000 miles of track equipped with the old rail at the end of 1888.

Special interest attaches to the distribution, territorially, of this large quantity of what will soon become old material. The table below, compiled from a larger table printed in "Poor's Manual," will sup-

ply the information, the first column giving the railroad mileage and the second the additional track mileage:

THE DISTRIBUTION OF IRON AND STEEL TRACK.

Groups.	Mileage of railroad.	Second track and sidings.	Steel rails.	Iron rails.
New England:				
N. H., Vt., Mass., R. I., Me., Conn.....	1887 6,684	3,151	6,351	3,484
	1888 6,857	3,454	7,222	3,989
Middle:				
N. Y., N. J., Pa., Del., Md., D. C.....	1887 18,662	13,014	23,147	8,530
	1888 18,794	12,988	23,978	7,804
Central Northern:				
O., Mich., Ind., Ill., Wis.....	1887 44,316	11,066	39,643	15,739
	1888 45,670	10,363	43,311	17,391
Southern Atlantic:				
Va., W. Va., N. C., S. C., Ga., Fla.....	1887 13,451	1,658	9,660	5,449
	1888 14,512	1,713	11,504	4,721
Gulf and Mississippi Valley:				
Ala., Miss., La., Tenn., Ky.....	1887 10,659	1,403	8,100	3,962
	1888 11,014	1,507	9,769	2,752
Southwest:				
Mo., Kan., Ark., Tex., Col., Ind. Ter.....	1887 28,905	3,583	19,594	12,893
	1888 30,065	3,807	21,567	12,305
Northwestern:				
La., Minn., Neb., Dak., Wyo., Mont.....	1887 16,848	2,358	13,404	5,802
	1888 18,215	2,529	15,215	5,529
Pacific:				
Ida., Wash., Ore., Cal., Nev., Ari., Utah.....	1887 8,473	814	5,559	3,728
	1888 9,148	860	5,950	4,058
Totals United States.....	1887 147,999	37,348	125,459	59,588
	1888 154,276	37,221	138,516	52,981

These figures, we are sure, are well calculated to cause some surprise. Thus out of a little over every ten miles of track New England still has three equipped with iron rails. The 1888 figure for iron rails in the Central Northern group is evidently erroneous, but rather than attempt to correct it we give Messrs. Poor's figure as it stands. Still, relatively and absolutely, the quantity of iron rails in Ohio, Michigan, Indiana, Illinois and Wisconsin is enormous. The Southwest seems likely to be a good source of supply for old rails for many years to come.

Taking it all in all, there are of old rails enough in the country to cover the demand for a considerable time, provided they are not held at unreasonable prices. For a good many purposes consumers can afford to pay up to a certain price and no more. When old rails climb much above 1 cent a pound, especially when steel rails are low, the temptation to substitute new steel becomes great. During the past year, when old rails cost in Pittsburgh about \$24 to \$25, iron fish-plates, delivered, sold at 1.65 cents at mill. At that price it paid the steel mills to roll them from new steel, light sections of rails fetching only \$29, or about 1.30 cents, at mill. It is evident that there should be a little sense even in booming old rails.

Chicago authorities have endeavored with more or less vigor for years to abate the smoke nuisance arising from the consumption of soft coal. While anthracite is used to some extent in that city, the quantity of soft coal used is many times as great. Fines have been imposed from time to time on the owners of the chimneys emitting the worst clouds of smoke, in the hope of compelling them to introduce furnaces to secure more perfect combustion, but the result of such coercion has not been very satisfactory. It is now proposed, almost as a last resort, that the city purchase the right to use one of the most effective patent devices for the prevention of smoke, offer its use to the citizens free of royalty and compel it to be introduced wherever coal is consumed in sufficient quantities to make the emis-

sion of smoke from the chimney a nuisance. Soft-coal smoke is the greatest discomfort with which the citizens of

Chicago have to contend, and it is remarkable that such progressive and enterprising people should continue to suffer from such a cause without making most vigorous efforts to correct it. It is even now one of the handsomest cities in the country, but its attractiveness would be enhanced many fold if the sky were occasionally visible and if its citizens were freed from the visible thralldom of smut.

The promoters of the pig-iron warrant scheme have at length taken a decisive step toward testing the possibilities of their plans. We print elsewhere the circulars issued by the New York Stock Exchange and the American Pig-Iron Storage Warrant Company, which will be perused with interest by the trade. No data have yet reached the public concerning the quantities of iron now covered by warrants, but those familiar with the condition of the stocks of iron in the country will have no difficulty in arriving at the conclusion that the number of "chips," as Mr. Carnegie called them, cannot be great as yet—we have reason to believe that the quantity does not reach 10,000 tons. To what extent this will influence the volume of speculative dealings and their effect upon the trade cannot well be foreseen. The first idea which naturally suggests itself is that it will prove an impediment to the plans of the promoters of the enterprise. On the other hand, the iron business has been attracting a good deal of attention from outside quarters lately, and it is quite possible that speculators may conclude that it is a good time to come in for a share of the profits from the rise which so many confidently expect.

**The Largest Draw-Bridge.**—The Shore Line Railway bridge at New London, the largest swing-span draw-bridge in the world, is now in position. It was built parallel to the shore along the fender pier, so as not to obstruct navigation, and was swung into place half an hour before sunset Saturday afternoon. It is of solid steel, weighs nearly 2,500,000 pounds, and its connecting parts when the bridge was swung into position shot into the mortises of the bridge proper with absolute precision. This was a great relief for



the anxious engineers. Some of the highest engineering skill ever employed in bridge-building has been used in the construction of this bridge, the situation involving peculiar difficulties. In some places 56 feet of water and 80 feet of mud were found where the piers must be set. There great timber curbs were constructed and sunk to the total depth of 137 feet. After scooping out the interior mud the curbs were driven full of piles. These, cut off at a level midway in the curbs, were bound solidly together by filling the spaces with concrete. On this rock-like basis the masonry of the pier was built up. The center pier is an immense structure 71 feet square. It is flanked on either side by spans of 310 feet, and there are two other spans at either side of the river of 150 feet each. The unusual length of draw was required by the United States Government that there should be no obstruction to the passage of the naval fleet to the Thames naval station further up the river. This great bridge, 1422 feet long, crosses the Pequot River (imitatively named by the first settlers the Tlames, while they, quite as foolishly, named Pequot New London) from a point at the terminus of the Yale-Harvard regatta course at Winthrop's Point, at the upper part of the town.

### OBITUARY.

CAPT. JAMES REES.

Capt. James Rees, the pioneer builder of steel-plate boats, died in Pittsburgh on the 12th inst. He was born in Wales December 25, 1820, and was 69 years old when he died. When he was seven years old he came to America and lived in Pittsburgh most of his life. He leaves a large family to mourn his loss. James Rees came to Pittsburgh and entered into partnership with Henry Carter in the spring of 1850. Mr. Rees has been closely identified with Pittsburgh's rise and progress. His first business venture with Mr. Carter was in the nut and bolt trade. In 1856 he disposed of his interest in this foundry and associated himself with Charles Knapp, of the Fort Pitt foundry. The firm carried on their business together until the fall of 1857, when J. W. Butler entered into partnership with them, and the firm was known as Knapp, Carter & Co. In later years Mr. Rees separated himself from the nut and bolt trade and opened an engine-shop, known as the Duquesne Engine Works. One of the most conspicuous achievements of Mr. Rees was the construction of the first steel-plate steam-boat in the United States. This vessel was the Francesco Montoya, and was built in 1878 for the Magdalena Steam Navigation Company, of South America. The boat was 150 feet long, 30 feet beam and 3 feet in the hold. It was supposed that the vessel would be a failure because it was made of steel plates. A very prevalent opinion existed at the time that the steel being so hard would snap if a vessel touched a snag or a rock. Mr. Rees had unflinching confidence that the vessel would stand better than iron. His confidence has been fully sustained. The firm also built in 1879 the Victoria, 157 feet long; Robert Calisto, 110 feet long, and the Comuta, 130 feet long. These boats were all shipped to their destinations in pieces. A couple of skilled men always went to superintend their reconstruction.

JOHN H. JONES.

John H. Jones, a pioneer in the iron business in this country, but who has been living in retirement for several years, died on the 13th inst. at his residence in Youngstown, Ohio. During his life-time Mr. Jones erected two rolling-mills and was the inventor of a number of patents now used in the production of iron.

STEPHEN FREEMAN.

At Racine, Wis., on the 10th inst., Stephen Freeman, one of Racine's largest and most prominent manufacturers, died of pneumonia, at the age of 75. He was a native of Wales and removed to Racine in 1857, where by dint of perseverance and hard labor he amassed quite a fortune. He was president of the agricultural implement firm of S. Freeman & Sons' Mfg. Company and also of the Wisconsin Agriculturist Company.

FREDERIC A. SHELDON.

In the death of Frederic A. Sheldon, which occurred at Troy, N. Y., on Thursday, September 5, the stove trade loses another of its veteran members. Mr. Sheldon was 67 years old, having been born in Troy, N. Y., in the year 1822. He was actively engaged in the manufacture of stoves up to 1873, when he retired from business. He was first a member of the house of Smith & Sheldon; then the style was changed to Smith, Sheldon & Co., who were succeeded by Sheldon & Greene, and at the time Mr. Sheldon retired the firm name was Sheldon, Greene & Co.

### PERSONAL.

The Iron and Steel Institute is gaining rapidly in membership among American iron-masters. The last voting-list includes the following names: R. W. Davenport, Bethlehem, Pa.; Walter B. Deveraux, W. E. Firth, Philadelphia; Lieut. W. N. Jaques, Bethlehem, Pa.; T. Jopling, Cleveland; G. G. M'Murtry, Pittsburgh; C. A. Otis, Cleveland; W. B. Ridgely, Springfield, Ill.; W. R. Walker, Chicago, and Maunsel White, Bethlehem.

Walter Crafts is now located at Anniston, Ala.

Erroneous reports, originating in London, have been printed in the daily press, intimating that there is some possibility of a contest between Abram S. Hewitt and Andrew Carnegie for the presidency of the American Institute of Mining Engineers for the year 1890. As a matter of fact, Mr. Carnegie has been requested by the council of the institute to act as chairman of the Reception Committee when the British Iron and Steel Institute come over next year, while Mr. Hewitt is not a candidate for the presidency.

F. W. Dean, chief draftsman for E. D. Leavitt and the Calumet and Hecla Mining Company, has resigned his position.

Lieut. F. W. Coffin has been ordered, as inspector of steel for the new cruisers, to Thurlow, Pa.

D. H. Neale, who was for some years mechanical editor of the *Railroad Gazette*, is now mechanical engineer on the New South Wales Government railways, with charge of the car department.

Thos. G. Barrett, a practical engineer and formerly an inspector of foreign steam-vessels, has been appointed inspector of steam-boilers at this port.

Alexander Mackay, general freight agent of the Michigan Central, was unanimously elected a member of the iron committee of the Central Traffic Association.

John Crerar, of Chicago, the well-known millionaire philanthropist, was stricken with paralysis at Atlantic City, N. J., on the 9th inst. Mr. Crerar has been for the last quarter of a century one of the best-known of Chicago's prominent citizens who have never filled a public office. Thirty years ago he went to that city from New York, where he had been long connected with the banking-house of M. K. Jessup, and entered into partnership in the firm of Jessup, Kennedy & Co., heavy hardware,

which firm was succeeded by the present one of Crerar, Adams & Co. Being a bachelor and the head of one of the most successful firms in the West, Mr. Crerar's business qualifications made him sought after by the management of many of the large corporations whose growth has been contemporary with that of Chicago. Besides being a director of the Chicago, Alton and St. Louis Railroad, he was president of the Joliet and Chicago Railroad, afterward leased to the Alton. He is also a director of the Joliet Steel Company, of the Chicago Telephone Company, the Pullman Car Company, the Illinois Trust and Savings Bank and a resident director of the London and Liverpool and Globe Insurance Company. Generous to a degree commensurate with his wealth, there are few local public charitable institutions which have not been benefited by his liberal but unostentatious donations. The latest advices from Mr. Crerar report a slight improvement in his condition.

Among the American workers who went to the Paris Exposition under the auspices of the Scripps League and who returned last week were Robert E. Masters, iron founder; R. M. McBeth, machinist; Cornelius C. McGlogan, brass-worker; Frederick D. Wheeler, ship-builder; John L. Waldeck, wire-drawer; W. J. Keep, of Detroit, stove-founder; W. T. Lewis, coal-mining; William Hanna, iron and steel working; William Milligan, car-building; Joseph Thorp, locomotive-engineering; W. R. Wilbur, nut and bolt making, and Thomas Kearney, safe and lock making.

Colonel Switzler, Chief of the Bureau of Statistics of the Treasury Department, has placed his resignation in the hands of the President.

Kenneth Robertson, until recently general manager of the Sloss Iron and Steel Company, at Birmingham, has accepted the position of general manager for the Virginia Furnace Company, who are lessees of the Victoria furnace property.

### Another Niagara Bridge.

Another bridge across the Niagara River near the International Bridge is contemplated by the Canadian Pacific Railway Company. President Van Horne says that the company will build a bridge for their own exclusive use and for their connections, rather than depend upon a right of way not absolutely within their own control. The city of Hamilton is already rejoicing in prospect of a direct communication with the sea-board by means of the Canadian Pacific. The decision now announced is supposed to have been hastened by a desire to forestall the proposed branch of the New York Central from Buffalo to Toronto. These repeated evidences of renewed vigor on the part of the Canadian Pacific are viewed with much complacency across the border, and taken in connection with the refusal of the Eastern railroads to arrange with the Western Freight Association for a through tariff between the sea-board and St. Louis are interpreted as proof positive that the American roads have lost the grip they once had on the transcontinental traffic. The Canadian Pacific doubtless feel more strongly intrenched than ever under the recent decision of the Interstate Commerce Commission to the effect that Congress alone can relieve the American roads from their dilemma, and are still more encouraged by the handsome increase of net earnings recorded from month to month in their struggle with American competition.

The Wright Mfg. Company, of Philadelphia, are offering to sell to railroads and other corporations the right to make for their own use the Wright bolt, of which they are the sole manufacturers.

# TRADE REPORT.

## Philadelphia.

Office of *The Iron Age*, 220 South Fourth St.,  
PHILADELPHIA, Pa., September 17, 1889.

**Pig-Iron.**—There is not much change to notice, but what little there is in the way of improvement. Mill Irons are becoming very scarce and desirable brands are at least 25¢ dearer than they were a week ago. Some makes remain at the old figures, but such brands as the consumers really want easily command the advance named, and even then are by no means plentiful. Large lots have been taken at \$15.75, delivered, and none but new brands or medium qualities are available at less than \$15.25 @ \$15.50. Everything depends on quality, but apart from that there is a perceptible stiffening in prices all along the line. Foundry grades seem to be comparatively dull, and while prices are steady they show less strength than those for mill purposes. This, however, is not likely to continue for any length of time, although it makes some irregularity in quotations, the range, for instance, being \$17 @ \$18.50 for No. 1, at tide, and \$16 @ \$17 for No. 2, although anything known to be fully up to the standard easily commands \$16.50 @ \$17 and \$17.50 @ \$18, and for strictly choice brands still higher prices are paid. The general impression seems to be that, while the output is enormous and may be still further increased within the next few weeks, prices may reach a higher level than has been seen for some time past. The total output on the 1st of the month was estimated in round numbers at 144,000 tons per week, as against 149,500 tons on the 1st of March, 154,500 tons on the 1st of January and 126,000 tons on the 1st of September, 1888. It will doubtless be a surprise to many to find that the general tendency has been to decrease the output during the past six or eight months, but it must be remembered that prices were on the decline until about two months ago, so that production was restricted accordingly. From this time forward, and so long as prices show an advancing tendency, the movement will be toward an increased output, but it is doubtful if the estimate for last March can be reached again, unless at a much higher cost than can be realized in the present condition of the market. These figures show, however, that the country can absorb at the rate of over 8,000,000 tons of Pig-Iron per annum, and as a matter of fact has done more than that, inasmuch as stocks are decreasing, and prices advancing. Under these conditions it is not surprising that the trade are at a loss to know what the next turn will be, and that both buyers and sellers are inclined to trade according to their early requirements, rather than to enter into speculative engagements.

**Blooms.**—The market is very hard to quote, owing to the crowded condition of the mills. Some are not quoting at all. Some ask what may be considered extreme prices, while still others who may have a little room for an order or two may name comparatively low figures. Then some lots from second hands have been coming on the market, so that without being at all weak prices have been somewhat irregular. At the following prices, however, orders could doubtless be placed, and in some cases possibly lower figures might be accepted, say \$30 @ \$30.50, delivered, for Nail Slabs; \$32 @ \$33 for Tank Slabs; \$36.50 @ \$37 for Shell Slabs; \$39 @ \$40 for Flange, and \$41 @ \$43 for Fire-Box; Charcoal Blooms, \$52 @ \$54; Run-out Anthracite, \$42.50 @ \$43.50; Scrap Blooms, \$32.50 @ \$33.50 per "Bloom" ton of 2464 lb

**Muck-Bars.**—The market has shown more irregularity than usual, owing to the offerings of several lots from speculative hands. Manufacturers quote from \$29 to \$29.50, at mill, firm, and sales have been made at \$29.25 @ \$29.50, at mill, and at \$30, delivered Philadelphia. But it reported to-day that lots from second hands are offered at \$29 @ \$29.50, delivered, so that the market is very unsettled, with a disposition on the part of buyers to hold off and await developments.

**Bar-Iron.**—The feeling is hardly as buoyant as it was a week ago, although prices are steady at the quotations then ruling. Mills have plenty of work on their books, but there are some complaints of delay in specifying, so that small orders for prompt delivery are not as hard to place as they were some time ago. Inquiries are not urgent or important, but there is believed to be plenty of work in the background, so that the present hesitancy is not likely to be of long duration. Prices are firm at from 1.85¢ to 1.90¢, at mill, although once in a while Western Iron or qualities more or less open to suspicion are offered at about 1.80¢, delivered.

**Skelp Iron.**—The market is dull, and, although manufacturers still quote 1.85¢ @ 1.90¢ for Grooved and 2.10¢ @ 2.20¢ for Sheared, they show some disposition to concede a trifle on offers of a desirable character as to payment, delivery, &c. Small sales reported at medium figures.

**Plates.**—There is no change in this department, mills full of work and deliveries called for with much urgency. There is not a great deal of new business offering at the moment, but the outlook is in all respects satisfactory, so that prices are held with absolute firmness at about the following quotations, say: 2.15¢ @ 2.20¢, delivered, for Ordinary Plates and Tank Plates; 2.25¢ @ 2.30¢ for Universal Plates; Shell, 2.4¢ @ 2.5¢; Flange, 3.25¢; Fire-Box, 3.7¢ @ 4¢; Steel Plates, Tank and Ship Plate, 2.25¢ @ 2.35¢; Shell, 2.6¢ @ 2.7¢; Flange, 2½¢ @ 3¢; Fire-Box, 3½¢ @ 4¢.

**Structural Material.**—New business is chiefly in small lots, but there is a sufficient accumulation of orders at mills to keep them busy for a long time to come. The general demand promises to be heavy for an indefinite period, and prices, if not higher, will certainly not go below those quoted during the past two or three weeks, which were as follows: Bridge Plate, 2.20¢ @ 2.30¢, delivered; Angles, 2.15¢ @ 2.25¢; Tees, 2.6¢ @ 2.7¢; Beams and Channels, 2.8¢ for Iron or Steel, all delivered at Philadelphia or its equivalent.

**Sheet-Iron.**—There is an improved demand for Sheets, and mills have about all the orders they can handle. Prices are firm, but remain as before for carload lots, viz.:

Best Refined, Nos. 14 to 20.....	3¢
Best Refined, Nos. 21 to 24.....	3.20¢
Best Refined, Nos. 25 to 26.....	3.40¢
Best Refined, No. 27.....	3.50¢
Best Refined No. 28.....	3.60¢
Common, ¼¢ less than the above.	
Best Soft Steel, Nos. 14 to 20.....	3¼¢
Best Soft Steel, Nos. 21 to 24.....	3½¢
Best Soft Steel, Nos. 25 to 26.....	3¾¢
Best Soft Steel, No. 27.....	4¢
Best Bloom Sheets, ¼¢ extra over the above prices.	
Best Bloom, Galvanized, discount.....	.65 %
Common, discount.....	.67½ %

**Steel Rails.**—The market is developing a very firm tone, and it is doubtful if anything could be done now at less than \$30 at mills. Several options that were out at from \$28.50 @ \$29, at mill, have been accepted, and \$30 firm is the present asking price. Mills have a great deal of work on hand, and the increasing cost of material compels manufacturers to ask prices in proportion.

**Old Rails.**—The market is firm, and sales during the week have all been at higher prices, say from \$25.25 up to \$25.87, delivered in consumers' yards. Holders are firm, and inclined to ask still higher figures, as there are very few Rails for sale, even at the present high quotations.

**Scrap-Iron.**—Prices are firm and average higher than during last week, although as yet only slight changes have been made in quoted rates, which are ordinarily about as follows: \$21 @ \$21.50 for cargo lots; \$22 @ \$22.50 for carload lots, delivered; or for choice, \$23; No. 2 do., \$15 @ \$16; Turnings, \$14 @ \$15; Old Steel Rails, \$16.50 @ \$17.50; Cast Scrap, \$15 @ \$16; do. Borings, \$9 @ \$10; Old Fish-Plates, \$25 @ \$26.

**Wrought-Iron Pipe.**—There is a good demand, and mills are all full of orders, but the outcome of to-morrow's meeting is waited with some degree of anxiety. Meanwhile discounts are as follows: Butt-Welded Black 50 %; Lap Welded Black, 62½ %; Butt-Welded Galvanized, 42½ %; Lap-Welded Galvanized, 50 %; Boiler-Tubes, 52½ % @ 57½ %, according to size.

**Nails.**—The market is dull and prices not as firm as they were a week or two ago, although \$1.85 @ \$1.90 for carload lots and \$2 from store appear to be fair average quotations.

## Chicago.

Office of *The Iron Age*, 59 Dearborn street,  
CHICAGO, September 16, 1889.

The indications of an upward movement in prices of finished products, which have been noted in our reports for several weeks, were well founded and the rise has begun. How far it will progress nobody can tell, but the weight of public opinion seems to be in favor of further advances. If prices are not marked up much higher, values can be sustained on the level then reached for a good long period, because thus far the advance has been legitimate, average rates being still far below those which have ruled in past epochs of prosperity. It would appear, however, that some members of the trade are very anxious to work up a boom and are endeavoring to excite buyers in order to help along the movement. They quote prices one day and withdraw them the next "for fear they would be accepted," or they issue circulars stating that all prices are withdrawn for the present, and in other ways seek to create a stampede. At the same time, buyers are more or less feverish and ready to take alarm as soon as a pronounced upward tendency is manifest. Experienced members of the trade, who have passed through several booms and succeeding reactions, are endeavoring to check their more youthful colleagues and are counseling moderation.

**Pig-Iron.**—The volume of business increased during the past week, and considerable quantities of Coke and Charcoal Iron were sold for shipment to points usually considered outside of this market. The demand for Ohio Softeners showed a further improvement. The Tennessee Coal, Iron and Railroad Company have withdrawn from the market except on No. 1 Foundry and No. 1 Soft, all other grades being sold up as far as it is deemed prudent. Quite an advance has been made on Lake Superior Charcoal and on special brands of Coke, but local Coke Iron is being conservatively held at former figures. Quotations are as follows, cash, f.o.b. Chicago: Bessemer, \$18 @ \$19, nominally; Lake Superior Charcoal, \$19 @ \$19.50; Local Coke, No. 1, \$16.50 @ \$17; No. 2, \$15.50 @ \$16; No. 3, \$15; Chicago and Bay View Scotch, No. 1, \$16.50 @ \$17; American Scotch (Black-band), No. 1, \$19 @ \$19.50; Jackson



County, No. 1, \$18; Hocking Valley and Hanging Rock, No. 1, \$17.50 @ \$17.75; Southern Coke, No. 1, \$16.50 @ \$17; No. 2, \$15.75 @ \$16; No. 3, \$15.25; No. 1, Soft, \$16; No. 2, Soft, \$15; Gray Forge, \$15; Mottled, \$14.50; Tennessee Charcoal, No. 1, \$18.50 @ \$19; Alabama Car-Wheel, \$22 @ \$24.

**Bar-Iron.**—Prices are steadily advancing, with a good demand from jobbers and consumers. The valley mills are now quoting 1.65¢ @ 1.70¢, at mill, as bottom on ordinary specifications of Common Iron, which is equal to 1.78¢ @ 1.83¢, Chicago, at the new freight rate. Other mills have also firmed up, and some heretofore cheap sellers are now asking 1.85¢, Chicago. Plenty of car orders are coming up, and prospects are excellent for a heavy demand in that direction. Jobbers have advanced their rates to 1.90¢, from store, to best buyers, and 2¢ for small lots of Common Good new Puddled Iron sells at 2¢ @ 2.10¢, according to quantity. Norway or Swedish Iron has also advanced on account of higher prices abroad, and 3.50¢ @ 3.75¢ is now asked on small lots from store.

**Structural Iron.**—The officers of the Lake Street Elevated Railroad announce that they have contracted with A. & P. Roberts & Co., of Philadelphia, for the construction of their line. A number of deals are pending involving considerable quantities of Structural Iron in the aggregate, and several additional large buildings are projected, so that the outlook in this line is excellent. Mill lots are quoted as follows, f.o.b. Chicago: Angles, 2.25¢ @ 2.35¢; Universal Plates, 2.30¢ @ 2.40¢; Sheared Plates, 2.40¢ @ 2.45¢; Tees, 2.65¢ @ 2.70¢; Beams and Channels, 2.90¢. Small lots from store: Angles, 2.40¢; Tees, 2.70¢ @ 2.75¢; Beams and Channels, 3.40¢.

**Plates, Tubes, &c.**—Prices are moving upward and dealers are exerting their powers of persuasion and coercion to induce more prompt shipments by mills. Orders are being received by local Plate jobbers from remote sections of the country, sent in by consumers who are unable to find stocks elsewhere. Tubes are very scarce, and orders are constantly received which cannot be filled. Store prices are as follows: Iron Sheets, Nos. 10 to 14, 2.80¢; Steel do., 2.80¢ @ 3¢; Tank, Steel and Iron, 2.60¢ @ 2.70¢; Shell Steel, 3¢; Flange, 3.50¢; Fire-Box, 4.25¢ @ 5.50¢; Ulster Iron, 3.75¢; Boiler-Rivets, 4¢ @ 4.25¢; Boiler-Tubes, 52½¢ off on 1¼-inch and less and 57½¢ off on 2-inch and up. Mill agents quote carload lots, f.o.b. Chicago, at 2.60¢ @ 2.70¢ for Nos. 10 to 14 Iron Sheets; 2.70¢ @ 2.80¢ for Steel do.; 2.50¢ for Tank Iron and 2.60¢ for Tank Steel.

**Sheet-Iron.**—Mills are asking 3.10¢, f.o.b. mill, for No. 27 Common. Carload orders are fairly abundant, and inquiries are being received from agricultural works for large quantities of Sheet-Iron cut to special shapes. The regular store price for this grade is now 3.40¢, with 10¢ @ 100 lb off to largest trade. Steel Sheets of light gauges are in very active request.

**Galvanized Iron.**—Jobbers' prices and mill agents' prices are now very close together. The lowest quotation now current on mill orders is 67½¢ and 2¢ off, while some agents name 65¢ and 5¢ as their *ultimatum*. Jobbers quote 65¢ and 65 and 5¢ on small orders. The demand is very heavy at present, and mill shipments are falling behind.

**Merchant Steel.**—An unusually large trade for the season is reported by sellers of Open-Hearth stock. Jobbers and consumers are buying very freely and large contracts are in sight. Sellers of Plow stock are having a continuous demand from their customers. Mill lots are quoted

as follows, f.o.b. Chicago: Spring and Tire Steel, 2.25¢ @ 2.40¢, flat; Toe Calk, 2.30¢ @ 2.50¢; Open-Hearth Machinery, 2.20¢ @ 2.30¢; Bessemer Machinery, 2.15¢ @ 2.20¢. From store jobbers quote: Mild Machinery, 2.25¢ @ 2.35¢; Bessemer Machinery, 2.40¢ @ 2.60¢; Open-Hearth Machinery, 2.70 @ 3¢; Tire, 2.40¢ @ 2.50¢; Tool, 7.50¢ @ 8.50¢; Sheet, 7¢ @ 10¢.

**Steel Rails.**—Some large contracts have been entered during the past week and inquiries are abundant from railroads in the South and Southwest, making the prospect of a full winter's work for the mills more and more certain. The local mills being loaded with orders for fall delivery up to their full capacity, inquiries for October delivery are being made by Western roads of Eastern mills, and considerable business could be placed if the manufacturers of that section were in a position to accept it. Railroad companies are beginning to manifest anxiety relative to their Rail requirements for next year, but it is stated that thus far they have found the manufacturers unwilling to name prices that far ahead. Prices are firm in this market at \$32 for large lots and \$32.50 @ \$33 for small lots of 500 tons or thereabouts. For 30s and 35s the mills continue to quote \$35.

**Track Supplies.**—Business is brisk, but competition is still vigorous and prices are being held down, except on Spikes, which show a slight improvement. A contract for Steel Splice-Bars was made at 1.85¢ by an Eastern mill, but it is confidently asserted that it cannot be duplicated by another buyer. Quotations are as follows, f.o.b. Chicago: Steel Splice-Bars, 1.90¢ @ 1.95¢; Iron ditto, 1.85¢; Spikes, 2¢; Bolts, Square Nuts, 2.50¢ @ 2.55¢; Hexagon, 2.65¢ @ 2.70¢.

**Old Rails and Wheels.**—Sales of Old Iron Rails have been made to a limited extent at \$24.25 @ \$24.75. At present the market is wholly local, prices at other consuming points not having advanced to a parity with this. The advances in Bar-Iron, however, are expected to make consumers of Old Rails a little more liberal in their views, and therefore higher prices are looked for. Old Steel Rails are in such demand that the railroad companies are asking quite an advance for them. While some deals were made early in the week on a basis of \$16.25 for short lengths, toward the close \$17.50 was asked. Long lengths have not advanced in the same proportion, but are quoted at \$18.50 @ \$19. Old Car-Wheels have been moved in small quantities at \$18 @ \$18.25, but higher prices are predicted for them.

**Scrap-Iron.**—As compared with other lines, business is quiet, although occasionally a good-sized transaction relieves the monopoly. Such slight changes as have occurred are in the direction of higher figures. Quotations are as follows, per net ton: No. 1 Forge, \$18.50 @ \$19; No. 1 Mill, \$14.50 @ \$15; Splice-Bars, \$21; No. 2 Mill, \$10 @ \$10.50; Car-Axles, \$24.50; Horse-shoes, \$19; Wrought Turnings, \$11.50; Axle Turnings, \$13; Wrought Pipe, \$13.50; Locomotive Tires, \$16.25; Leaf Steel, \$15.25; Coil Steel, \$14.50; Cast Machinery, \$12; Stove-Plates, \$9; Cast Borings, \$9; Mixed Country Scrap, \$15.

**Hardware.**—Business continues exceedingly active in Shelf Hardware, with collections in very satisfactory shape. Heavy Hardware showed an improvement as compared with the preceding week. Prices are stiffening all along the line. Machine Bolts are now selling at 80¢ off as the minimum, with 75¢ asked for small lots. Nuts have advanced 30¢ @ 100 lb above the low price recently prevailing. Lag-Screws, Bolt-Ends, &c., are also higher. Anvils have been advanced ¼¢ @ 1¢ to correspond with advances made abroad,

and another advance is expected to occur shortly.

**Nails.**—Heavy transactions have taken place during the past week, and factories are rapidly being sold up and withdrawing from the market. The lowest sales made were on the basis of \$1.85, at mill, for Steel Nails, but that price is now simply historical. Most agents for Wheeling makers now ask \$2, at mill, and those who are willing to book orders at \$1.90 @ \$1.95 are daily expecting advices from their principals to advance their rates. The Nail manufacturers who have their own Steel plants are particularly independent, having other outlets for their product, which are so much more profitable than Nails. Wire Nails are now firm at \$2.20, at factory. The cheap sellers are oversold and the demand has now come on the others, who are at last getting their price. The demand for Wire Nails is very heavy and further advances in price are looked for. A quotation of \$2.30, Chicago, which was made on a 5000-keg lot, was withdrawn before the purchaser had time to give the matter proper consideration. Jobbers quote small lots of Cut Steel Nails at \$2.05 and Wire Nails at \$2.45. Mixed carloads are quoted at \$2 for Steel Nails and \$2.40 for Wire Nails.

**Barb-Wire.**—The advancing tide has struck this branch of trade at last, and Painted Wire is now quoted at 2.85¢ for small lots and 2.80¢ for carloads. Galvanized Wire maintains its usual difference of 60¢ @ 100 lb. A very good demand is noted for current needs, but so far as can be learned no contracts are now being made or solicited for future delivery.

**Pig-Lead.**—Dealers report that consumers have supplied their immediate wants and the market is now easier. The sales of the past week aggregated from 200 to 300 tons at 3.90¢ @ 3.95¢, closing at 3.90¢ as a nominal quotation.

## Pittsburgh.

Office of *The Iron Age*, 77 Fourth Ave. {  
PITTSBURGH, September 17, 1889. }

The outlook for business during the fall and winter was never better; there is a big demand for both Iron and Steel all over the country, and there is every indication that it will continue for some time to come. Railroads will be large consumers of both Iron and Steel for a year or more to come. Not only are the new roads now in course of construction large buyers, but the older corporations are making important repairs and improvements both to their tracks and rolling-stock, which will require thousands of tons. All the car shops and locomotive works in the country are very busy, and the same is true of the Rail-mills. The fact that general business is good is demonstrated fully by the crowded condition of all the leading railroads of the country. Notwithstanding the immense capacity of the Pennsylvania Railroad, they are unable at present to meet the requirements made upon them, and as a consequence they have contracted for the building of several thousand new cars. Other roads are in the same condition, and will have to increase their rolling-stock.

**Pig-Iron.**—There has been a fair business during the week under review, but not anything like what it was a month or more ago; nor can it be expected, from the fact that the furnaces in this section of the country are all sold ahead several months and consumers have covered their requirements pretty well during the same time. Probably never before were the furnaces in this district so generally sold up. Prices have undergone no change as compared with a week ago. No. 1 brands of Gray Forge Iron may be fairly quoted

at \$15.50, cash, and Bessemer at \$18, cash. Some sales of the latter have been reported at \$18.25 and \$18.30, cash, but brokers say they are still prepared to sell for any delivery during the remainder of the year at \$18, cash, and that they find consumers pretty well filled up. Freight goes up this month, and it is expected that Coke will be advanced next month, and, therefore, there is no prospect of the market taking a turn backward; on the contrary, some of the brokers predict that prices will rule higher next month, if not before. Quotations may be fairly made as follows:

Neutral Gray Forge.....	\$15.50 @	cash.
All Ore Mill.....	16.00 @	\$16.25, "
White and Mottled.....	14.00 @	14.50, "
No. 1 Foundry.....	17.00 @	17.50, "
No. 2 Foundry.....	16.00 @	16.50, "
No. 2 Charcoal Foundry.....	22.00 @	22.50, "
Cold Blast Charcoal.....	25.00 @	28.00, "
Bessemer Iron.....	18.00 @	18.25, "

**Muck-Bar.**—The demand continues light as compared with what it was early in the summer, but prices remain unchanged. We continue to give \$28, cash, as the ruling price. There are sellers at the price quoted, but none at anything less. Muck-Bar has advanced \$2  $\frac{1}{2}$  ton as compared with the lowest point. There is an evident effort being made to force the market up.

**Spiegel.**—Is still tending upward and we now quote at \$33 @ \$34 for 20 %. Ferromanganese is also higher, being quoted at \$66 @ \$67 for 80 %.

**Manufactured Iron.**—There is a continued good demand for all kinds of Manufactured Iron, and prices are steady at the recent advance. Merchant Iron is still quoted upon a basis of 1.75¢ @ 1.80¢ for Bars, 60 days, 2 % off for cash. Tank and Plate Iron is quoted at 2.15¢ @ 2.30¢; No. 24 Sheet at 2.85¢ @ 2.90¢. There is a continued good demand for Structural and Bridge Iron, while for Skelp Iron the mills making a specialty of it are very much crowded. The latter is quoted at 1.80¢ @ 1.85¢ for Grooved and 2 10¢ @ 2.20¢ for Sheared.

**Nails.**—The Cut Nail market is firmer, owing to the increased cost of production, as Steel Nail Slabs have advanced \$3 @ \$3.50  $\frac{1}{2}$  ton, which is a big item on the cost of production of Nails. While some makers are still selling at \$1.90, 60 days, 2 % off for cash, others are refusing to accept anything less than \$2, so that quotations may be fairly made at \$1.90 @ \$2. Under the new card recently adopted at Wheeling there are as many Cut Nails in a keg as there are of Wire Nails, in addition to which the former are considerably cheaper. It is evidently the intention of Cut Nail manufacturers to knock out the Wire Nail if they can; and it was with this effect in view that Wheeling manufacturers reduced the size so as to have as many if not more Cut Nails. This was a strong point made in favor of the Wire Nail. The Wire Nail card remains unchanged at \$2.25, 60 days, 2 % off for cash, but it is claimed that the card is being cut.

**Wrought-Iron Pipe.**—There is a continued good demand, especially for large-sized Pipe, and prices continue at the association rates. The regular monthly meeting of the association takes place in this city to-morrow. The most important matter for action will be to regulate the demands made by the Steam and Water Fitters' Association, who complain that the manufacturers do not allow them a sufficient discount on purchases of Pipe. They maintain that they ought to be given the same discount that is allowed to jobbers, and the latter object that manufacturers ought not to sell to consumers at all or at least on the same terms granted to them.

**Old Rails.**—Continue very scarce hereabouts and the market is still tending

upward, but we are reliably informed that there are offers to buy at \$26, and that at the prices demanded at some sources of supply they would cost a dollar or two more laid down in Pittsburgh. Old Steel Rails are more in demand and firmer; sales reported at \$19.50 for short and \$20.50 for long pieces.

**Billets, Blooms, &c.**—Bessemer Steel Billets and Blooms are still in demand, with mills all oversold, and prices may be quoted at \$29 @ \$30, as to size, delivery, &c. Nail Slabs about the same as Billets. Rail Crops, in the absence of sales, quoted at \$20 @ \$20.50 and Bloom Ends at \$19.50 @ \$20.

**Steel Rails.**—Heavy sections for any delivery between now and January, 1890, quoted at \$30, cash, on cars at mill in Pittsburgh. For January or February, 1890, delivery the price above quoted would probably be shaded.

**Railway-Track Supplies.**—Spikes are still quoted at 2.10¢, 30 days, delivered on cars at works. Splice Bars and Track Bolts are quoted as before, but they will doubtless go higher, and it is doubtful whether large orders would now be taken at present prices.

**Old Material.**—There is an increasing demand and prices are firm. No. 1 Wrought railway shop Scrap, \$20.50 @ \$21, net ton; Wrought Turnings, \$13 @ \$14; Car Axles, \$25 @ \$26; Cast Scrap, \$14.50 @ \$15, gross; Old Car-Wheels, \$18 @ \$18.50—sale 150 tons at \$18.25.

## Cleveland.

CLEVELAND, September 16, 1889.

**Iron Ore.**—Buyers have made heavy demands upon the Ore men during the past ten days, but have succeeded in obtaining only odds and ends varying in amount from 500 to 4000 tons. The situation thus disclosed has led the mine-owners to an examination of their books and to the conclusion that fully 6,600,000 tons of Ore must have been sold since the opening of the season. This amount includes the heavy purchase four months ago by the consolidated Steel companies and the 750,000 tons of Ore sold to the Eastern furnaces. It is believed that the 250 or 300 mines in the Lake Superior district cannot unitedly furnish over 300,000 tons of unsold Ore. All of the Gogebic mines have made heavy sales since the first of the month and have readily obtained \$5.15 @ \$5.25  $\frac{1}{2}$  ton for their best Ores. The Menominee mines are closely sold up. Included, however, in the quantity of Ore still unsold is 40,000 tons of Lake Angelina Ore, for which \$6.60 @ \$6.75 is asked. Only scattering lots of non-Bessemer can be obtained. Vessel men are having hard work obtaining the advanced prices for transporting Ore and charters at \$1 from Escanaba, \$1.20 from Marquette and \$1.40 from Ashland and Two Harbors are now reported. So large a portion of the lake fleet has already been chartered, however, that the advanced lake freights will have no important effect upon the market. Over 4,900,000 tons of Ore have already been unloaded at lower lake ports, against 2,800,000 tons unloaded at a corresponding period last year.

**Pig-Iron.**—The demand for present needs and for future requirements is heavy enough to warrant an advance of from 50¢ to \$1  $\frac{1}{2}$  ton for all desirable grades of Iron. All of the valley furnaces have advanced the price of labor 10 % and an advance in the price of coke is also expected. Both of these facts are factors in the revised quotations. Bessemer Irons are now quoted at \$18.40, cash, Cleveland, and it is believed that \$20 will be paid before November 1. Valley furnaces quote No. 1 Foundry at \$18 and No. 2 Foundry \$17,

November delivery. During the week 200 tons of No. 2 Foundry Iron were sold at \$16, cash, at the valley furnaces. The furnaces are well sold up and production is unable to keep pace with the consumption.

**Scrap-Iron.**—Wrought-Iron Scrap is in good demand at \$20. Old American Rails have advanced to \$25 @ \$25.50. Old Wheels are worth \$17.50 @ \$18.

## Cincinnati.

Office of *The Iron Age*, Fourth and Main Sts. (CINCINNATI, September 16, 1889.)

**Pig-Iron.**—There has continued to be an active demand for Pig-Iron during the past week and an eagerness on the part of buyers which has carried prices up 25¢ @ 50¢  $\frac{1}{2}$  ton on Coke Irons, the demand being mainly for No. 3 Foundry and Forge grades, with transactions reaching some 40,000 tons. The market might be called an excited one, and the sales would doubtless have been large but for the fact that the Southern furnaces have sold to the extent of their capacity for several months ahead. The sales were mainly for delivery during the current calendar year, but in some instances have run two months into the approaching year. The Northern furnaces have also sold to a liberal extent. Charcoal Iron has also met an immense demand, but as it is in relatively large supply it has not sustained any quotable advance in price, although a more confident undertone is apparent. Car-Wheel Iron is also in good demand and firm at previous prices. It is not improbable that still higher prices may be recorded in the early future all along the line, for there is an unprecedentedly large consumption going on in this district, although most of the furnaces now in blast are satisfied with the moderate profits which are afforded by the current rates, and would prefer to have them remain on the present basis rather than go to a point which would encourage increased production, and consequently greater competition, which might come at a time when the present heavy rate of consumption should from some cause be cut down. But few, if any, of the furnaces are now burdened by surplus stocks, and consumers are not carrying enough to obviate the necessity of constant replenishment, so that it would seem difficult to prevent a further appreciation in value, unless there is a prompt enlargement in production, and of this there are already some significant indications. The following are approximate prices current here at the close for cash, f.o.b.:

### Foundry.

Southern Coke, No. 1.....	\$15.50 @	\$15.75
Southern Coke, No. 2.....	14.75 @	15.00
Southern Coke, No. 3.....	14.25 @	14.50
Ohio Soft Stone Coal, No. 1.....	16.00 @	16.75
Ohio Soft Stone Coal, No. 2.....	15.00 @	15.75
Mahoning and Shenango Valley.....	16.00 @	16.75
Hanging Rock Charcoal, No. 1.....	20.00 @	22.00
Hanging Rock Charcoal, No. 2.....	19.00 @	21.50
Tennessee and Alabama Charcoal, No. 1.....	17.50 @	18.50
Tennessee and Alabama Charcoal, No. 2.....	16.50 @	17.50

### Forge.

Gray Forge.....	13.75 @	14.00
Mottled Neutral Coke.....	@	13.50

### Car-Wheel and Malleable Irons.

Southern Car-Wheel.....	23.00 @	24.00
Hanging Rock, Cold Blast.....	22.00 @	25.00
Lake Superior Car-Wheel and Malleable.....	20.00 @	21.00

**Manufactured Iron.**—The mills and machine-shops continue to have full employment on old orders and there is a fair volume of new business, which maintains the confident feeling which has prevailed, and on new business somewhat better prices are asked and in some instances realized.

**Nails.**—There is a decidedly stronger feeling in the market, and while prices are somewhat irregular they are higher, with the tendency still strongly upward.



Iron and Steel Nails, 12d to 40d, sell at \$1.95 @ \$2 ½ keg, with 10¢ rebate in carload lots, at the mills. Steel Wire Nails sell at \$2.35 @ \$2.40 for 60d.

**Old Material.**—There are only moderate offerings of stock in this line, scarcely enough, in fact, to test the market, so that quotations are merely nominal. Old Rails would doubtless sell at \$24 and Old Wheels at \$19 ½ ton, spot cash.

## St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st.,  
ST. LOUIS, September 16, 1889.

**Pig-Iron.**—The improvement continues and the market gains strength daily. The week under review has been all that could be desired, both as regards prices and volume of business, and those who have not placed their orders will find prices from 50¢ to 75¢ higher than their last purchases. The result is what might be expected, however, as indications have pointed to an increase in values for some weeks past. The only feature worth note was the purchase by a local Pipe works of a large lot of No. 2 Foundry, Gray Forge and Southern Soft Iron, aggregating nearly 7000 tons, the prices paid for which were about as follows: No. 2 Foundry, \$14.90; Southern Soft, \$14.25; Gray Forge, \$14, delivered. In addition to this there have been some good orders placed, averaging from 300 to 500 tons, and taking everything into consideration the past week has been a fairly busy one and the outlook for a further advance in prices is considerably brighter. For ordinary-sized lots we quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	\$16.00 @ \$16.50
Southern Coke, No. 2 Foundry,	15.00 @ 15.50
Southern Coke, No. 3 Foundry,	14.50 @ 14.75
Gray Forge.....	14.00 @ 14.50
Ohio Softeners.....	17.00 @ 19.00
Lake Superior Charcoal.....	20.00 @ 21.50

### Missouri.

Charcoal Foundry, No. 1.....	16.25 @ 16.50
Charcoal Foundry, No. 2 .....	15.00 @ 15.50

### Tennessee.

Charcoal Foundry, No. 1.....	18.00 @ 18.50
Charcoal Foundry, No. 2.....	17.00 @ 17.50
Connellsville Coke, f.o.b. East St. Louis,	\$4.85; St. Louis, \$5.

**Bar-Iron.**—As was expected, Bars have been advanced from 1.85¢ to 1.95¢ from store, and lots from mill cannot be bought for less than 1.85¢, delivered at East St. Louis. The demand is increasing, and mills have considerable difficulty in making prompt shipments. The railroads have come into the market and have in some cases trebled their usual monthly orders, and the general outlook is most promising.

**Barb-Wire.**—Although mills are working up to their full capacity, they have some trouble filling orders promptly, and from the way orders are being received there does not seem to be much chance of any cessation in the demand. Prices, which were advanced about ten days ago, are being well maintained, and in some cases, when prompt shipment is wanted, higher prices than those quoted are paid. As a basis on which most sales are made, however, the following prices are quoted: Painted, in small lots, from 2.85¢ to 2.90¢; Galvanized, 3.40¢ @ 3.45¢; carload lots Painted, 2.80¢ @ 2.85¢; Galvanized, 3.35¢ @ 3.40¢.

## Louisville.

LOUISVILLE, KY., September 16, 1889.

**Pig-Iron.**—The market has been very firm during the past week, though buying at this point has not been large. Several thousand tons have been placed on a basis of \$13.25 for Gray Forge and \$13.75 for No. 3 Foundry. Warrant Iron has been especially in demand and has been

purchased as fast as offered. St. Louis seems to have been the center of the Western buying movement during the past week, and it is thought that heavy purchases will be made at other points during the next ten days, as it is anticipated that buyers East cannot long hold off from making purchases. This on top of the strong demand West it is considered will increase the price of Iron so that a slight advance will take place during the next few days. Current quotations are as follows:

Southern Coke, No. 1 Foundry,	\$15.00 @ \$15.50
Southern Coke, No. 2 Foundry,	14.50 @ 15.00
Southern Coke, No. 3 Foundry,	13.75 @ 14.25
Gray Forge.....	13.25 @ 13.75
White and Mottled, different grades	12.75 @ 13.25
Silver Gray, different grades.....	13.25 @ 13.75
Southern Charcoal, No. 1 Foundry	16.50 @ 17.00
Southern Charcoal, No. 1 Mill.....	15.00 @ 15.50
Southern Car-Wheel, standard brands.....	22.00 @ 23.00
Southern Car-Wheel, other brands	18.25 @ 19.75
Hanging Rock Coke, No. 1 Foundry.....	15.75 @ 16.25
Hanging Rock, Charcoal, No. 1 Foundry.....	19.75 @ 21.25
Hanging Rock, Cold Blast.....	21.00 @ 23.00

## Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts.,  
CHATTANOOGA, September 16, 1889.

**Pig-Iron.**—The market is steady, with no disposition to advance prices beyond what was being asked the week previous, but still the market is decidedly firm. There is no complaint whatever among the furnaces of want of orders, and any offers less than the market rate are not taken. Inquiries for future wants would indicate a prolonged condition of the present status of the market, and there appears just now more than the usual inquiry for long contracts extending into the coming year, but as a general thing such inquiries are not looked upon with favor; \$13 may be considered a fair figure for No. 1, with the usual differences of grades.

## Detroit.

WILLIAM F. JARVIS & Co., under date of September 16, 1889, say: The market still continues active, and during the past week several good-sized orders for Lake Superior Charcoal have been refused, owing to the inability of furnaces to make delivery before close of Lake navigation, as noted in our report of last week. While the greatest activity is in Lake Superior Charcoal, still quite a number of Ohio Coke and a few Southern furnaces have also been compelled to refuse orders, as they are oversold for delivery during the next 60 to 90 days. The general outlook is good and many furnace-owners are expecting a still further advance to take place at no distant date. The very large Ore shipments, together with grain going from the upper lake ports, have caused a still further advance in water rates. Canal rates from Buffalo to Eastern points are also ruling higher. With an active market we quote as follows:

Lake Superior Charcoal, all numbers.....	\$19.25 @ \$19.75
Lake Superior Coke, all ore.....	18.50 @ 19.50
Lake Superior Coke, cinder mixed	17.50 @ 18.50
Standard Ohio Blackband.....	18.00 @ 18.50
Southern No. 1.....	17.00 @ 17.50
Southern Gray Forge.....	15.50 @ 16.00
Southern Silvery.....	16.50 @ 17.00
Jackson County (Ohio) Silvery.....	18.00 @ 18.50
Old Wheels .....	18.00 @ 19.00

## New York.

Office of *The Iron Age*, 66 and 68 Duane street,  
NEW YORK, September 18, 1889.

**American Pig.**—The market in this immediate vicinity has been moderately active and steady. Some furnace agents report that there has been a falling off in the run of inquiries, while others profess their inability to take further orders, because their furnaces are sold up for the balance of the year. This is true both of Northern and Southern furnaces. Still,

we hear that No. 1 Southern Foundry is being offered for delivery up to the end of January at \$16.75. The reports from Western points, notably from Cincinnati, note very heavy sales of the lower grades of Southern Iron. We print elsewhere the circulars issued by the Stock Exchange and the American Pig Iron Storage Warrant Company. Quotations are as follows: No. 1 Anthracite Foundry, at tide-water, \$17 @ \$18; No. 2, \$16 @ \$17; Gray Forge, \$15 @ \$15.75; Southern No. 1 Coke Foundry, delivered at New York, \$16.75 @ \$17; No. 2, \$15.25 @ \$15.50; No. 3, \$15 @ \$15.25.

**Scotch Pig.**—The great rise in foreign markets has pretty effectually cut off business. We hear of small lots of Coltness actually fetching \$23.00, and quote Languan \$24. The purchase of foreign Iron at such prices is regarded by many as a pretty strong reflection on the capacity of any founder.

**Spiegeleisen and Ferromanganese.**—The foreign market is still advancing, and it is claimed that 20¢ Spiegel cannot now be imported under \$32. A sale of 1000 tons, early delivery, is reported to have been made at \$31 during the week. One leading importer states that he has sold a moderate lot of Ferromanganese at \$66, ex-ship, and that his asking price is now \$69 @ \$70.

**Billets and Slabs.**—The inquiry continues urgent, but the absence of much available stock is restricting business. We learn of sales of several thousand tons of special 1½-inch Billets by an Eastern Rail mill at \$35. For ordinary sizes and grades \$29 @ \$30 at mill is being asked. Nail Slabs are scarce. The condition of the foreign market is illustrated by the fact that for a lot to be used to supply material for a re-export order of Cut Nails the importers quoted \$36.50.

**Finished Iron and Steel.**—It is reported that two Eastern Pennsylvania structural mills have closed the large contracts for the construction of the Chicago and St. Louis elevated roads. Prices for this class of work and for bridges continue low, in spite of the fact that the structural mills are crowded with business. We quote as follows, on dock: Sheared Plates, 2.15¢; Universal Mill Plates, 2.20¢ @ 2.25¢; Angles, for the smaller sizes, 2.1¢ @ 2.20¢; for larger sizes, 2.25¢; Tees, 2.5¢ @ 2.6¢; Beams and Channels, 2.8¢. In Plates, Steel Tank is 2.3¢ @ 2.35¢ for ½ inch or thicker and 2.45¢ @ 2.5¢ for thinner; Shell, 2.55¢ @ 2.6¢; Flange, 2.75¢ @ 2.8¢; Marine Steel, 2.8¢ @ 2.85¢; Fire-Box, 3.25¢ @ 4¢. For Bars we quote: Common, 1.65¢; Medium, 1.65¢ @ 1.7¢, and Refined, 1.85¢ @ 2¢. Hoops, 2¢ @ 2.1¢; Galvanized Sheets, 65 ¢ and 5 ¢.

**Merchant Steel.**—We quote Machinery 2.10¢ @ 2.15¢; Toe-Calk, 2.15¢ @ 2.30¢. Tire, 2.10¢ @ 2.25¢; Sleigh-Shoe, 1.9¢ @ 2¢, delivered, and Spring Steel, 2.4¢ @ 2.5¢, delivered.

**Steel Rails.**—The principal event during the week has been the reported purchase by the receivers of the St. Louis, Arkansas and Texas Railroad of 10,000 tons, of which about 2000 tons were bought from a Michigan railroad and 8000 tons from a mill in Eastern Pennsylvania, the price being \$32.50, delivered at Cairo. Outside of this only small transactions have been closed, including a lot of about 1300 tons to go to North Carolina. All the active mills are well supplied with work up to December, and more of them have orders on their books to the end of the year and the early months of 1890. Until now comparatively little business has come up for next year. Shipments for the first eight months of this year figure up 800,000 tons, exclusive, of course, of the Allegheny Bessemer Steel Company. On the

1st of the month the mills had 1,135,000 tons on their order-books, the allotment being 1,500,000 tons. The latter, of course, includes the work assigned to mills which have practically done nothing in making Rails this year and which could probably not touch the business unless prices advanced materially. We continue to quote \$28 @ \$29 at Eastern mill, according to time of delivery, size of order, &c., the latter figure having been actually paid for moderate lots, early delivery.

## Metal Market.

**Copper.**—On Thursday last London cabled spot Copper £42. 15/ and last night £42. 17/6, futures improving from £41. 10/ to £42. Sales, 300 tons. Our own market has been lifeless at nominally 11¢ for Lake, 10½¢ Electrolytic and 10¢ for casting brands. It was telegraphed from Boston since our last: "Following is the statement of the Boston and Montana Consolidated Copper and Silver Mining Company for the year ended June 30, 1889: Product of Matte and Ore, 42,490,698 lb, yielding 24,204,844 lb of refined Copper, which was sold for \$2,807,244; product of Silver, 152,993 ounces; sold for \$116,291; received from Gold sales, \$68; total gross receipts from product of mine, \$2,923,603; total running expenses, \$1,908,686; mining profit for the year, \$1,014,917. After deducting the amount paid in dividends for property bought, construction, cancellation of bonds and interest on bonded debt, the balance of assets is \$339,458. The Allouez Copper Mine will suspend production on the last of this year. It costs 12¢ 7/8 lb to produce and market its Copper, and the condition and prospects of the Copper situation give it no promise of better results." The export of Ingot-Copper from the United States during the first seven months did not exceed 4,335,688 lb, as compared with 22,740,924 during the corresponding period of 1888. In their monthly report, dated September 2, Messrs. James Lewis & Son, Liverpool, remark: "The support given to the market by the holders of the stock taken over from the Société des Métaux, now amounting to about 105,000 tons, has enabled the different mining companies to realize their produce at full prices chiefly for forward delivery." The import of American Copper into Liverpool and South Wales during the first eight months was 18,796 tons Fine, against 18,014 in 1888 and 7512 in 1887.

**Tin.**—Tin has been shipped from Liverpool and Havre this way to come to the relief of the cornered market, and altogether some 500 tons will be due here within the coming fortnight, the knowledge of which has encouraged operators for a fall to put forward their offers more freely. Spot, nevertheless, remained tolerably firm from actual scarcity of available supplies. Sales yesterday were 40 tons spot at 21.70¢; 130 tons September at 21.10¢ @ 21.45¢, including lots per City of Paris at 21.10¢ @ 21.50¢, the latter for arrival guaranteed September 25, and 10 tons October at 20.25¢, closing at 21.85¢ spot and 20.30¢ December. Spot Tin is firm to-day at 21½¢ @ 22¢. It is claimed that dealers are bidding up the market on the exchange in order to be able to demand full prices from the smaller consumers in particular. Spot meanwhile rose in London from £90. 5/ to £90. 12/6, and futures from £90. 10/ to £91. Messrs. Gilfillan, Wood & Co., Singapore, August 6, state: "A falling off in shipments is looked for in September and October, when, as is usual, supplies are slightly reduced." The import of Tin into the United States during

the first seven months was 18,593,114 pounds, against 19,386,874 in 1888. **Tin-Plates.**—Business not coming up to expectations, quotations are a little lower. The demand for canning purposes is quite light, owing to the short supply of fruits and vegetables; the stamping trade is also in an unsatisfactory condition, no advance in the price of manufactured goods having been made to meet the recent enhancement in the price of Tin-Plates; in fact, on some articles the price has been lowered to try to attract trade. All this has affected the other side and the late improvement there has not been fully maintained. We quote large lines, ordinary brands, 7 box: Siemens-Martin Steel, Charcoal finish, \$4.75 @ \$5.50; Coke finish, \$4.60 @ \$4.65; Terns, \$4.12 @ \$4.30; Coke Tins, \$4.30 @ \$4.37½, and Wasters \$4.10 @ \$4.12½. The import of Tin-Plates into the United States during the first seven months was 461,574,405 lb, against 388,952,085 during the corresponding period of last year.

**Lead.**—Sales for the week have been restricted to barely 200 tons at 3.90¢ @ 4¢, the market winding up featureless at 3.95¢ @ 4¢ nominally.

**Spelter.**—One hundred tons were sold at 5.10¢ @ 5.12½¢; being very dull, the market closes 5.10¢. Silesian may be quoted 6½¢ nominally.

**Antimony.**—Our market has been inactive, but firm, at 19¢ Cookson's and 17¢ @ 17½¢ Hallett's.

## New York Metal Exchange.

The following sales are reported:

THURSDAY, September 12.	
10 tons Tin, September.....	21.20¢
FRIDAY, September 13.	
10 tons Tin, January.....	20.20¢
20 tons Tin, November.....	20.25¢
MONDAY, September 16.	
10 tons Tin, November.....	20.15¢
25 tons Tin, September .....	21.00¢
TUESDAY, September 17.	
25 tons Tin, September.....	21.25¢
40 tons Tin, spot.....	21.70¢
50 tons Tin, September.....	21.20¢
25 tons Tin, September.....	21.10¢
(Via City of Paris.)	
10 tons Tin, September.....	21.15¢
10 tons Tin, September.....	21.30¢
(Via City of Paris, arrival guaranteed September 25.)	
10 tons Tin, October.....	20.25¢
10 tons Tin, September.....	21.45¢
WEDNESDAY, September 18.	
10 tons Tin, October.....	21.45¢
10 tons Tin, November.....	20.25¢
20 tons Tin, October.....	20.30¢
20 tons Tin, October.....	20.30¢
10 tons Tin, September.....	21.40¢
10 tons Tin, September.....	21.45¢
20 tons Tin, October.....	20.40¢

The dullness of the Metal Exchange was temporarily dispelled just before closing time Tuesday. E. P. White shouted "I'll bet \$500 that no man on the floor will sell 100 tons of September Tin at 21.75." "I'm your man," yelled James E. Pope, and the sale was immediately chalked upon the board. Later the secretary was appealed to for an opinion on the validity of the sale. A vote was about to be polled when a compromise was effected and the record was erased.

## Financial.

A tempest of almost unprecedented severity has operated prejudicially to many trade interests, and in connection with the dock laborers' strike in London has especially affected foreign trade. Exports for several days were entirely suspended. For several reasons trade reports are not uniformly satisfactory, but cheering accounts continue to be received respecting the maturing crops. According to the Government report the weather was especially favorable throughout the corn belt. Cutting of corn is in progress, and

a large percentage of an excellent corn crop is now safe from frost. Recent rains placed the ground in a favorable condition for plowing in the States of the Mississippi Valley. Cotton picking is in progress, with improving prospects. The hop crop is safe, both in New York and California. The latest estimates are 476,000,000 bushels wheat, against 415,000,000 last year; 2,000,000,000 bushels of corn, against the same quantity last year, and 734,000,000 bushels of oats, against 701,000,000 last year.

The *Baltimore Manufacturers' Record*, whose specialty is Southern trade, publishes reports from a number of leading bankers in the South, who agree in saying that the South has never since the war been so prosperous as it is now. The increase in the value of Southern crops this year over 1888 is estimated at \$125,000,000, though last year's was the largest on record up to that time. The assessed value of property, from the assessments being made, will be \$175,000,000 greater than last year. The greatest increase is in Texas, the next in Georgia, after that Alabama. Chairman Walker, of the Interstate Railway Association, who was in the city, was more hopeful in alluding to the general railroad situation than the public might suppose. It was true, he said, that a serious problem was presented in the Northwest, and it threatened a loss of profits at the profit-earning season of the year. The situation in the Northwest, however, served to enforce the need for an amendment of the law as related to Canadian competition. The Interstate Railway Association would continue to assert its wholesome influence.

The Stock Exchange markets, after displaying much strength, yielded to bearish pressure and disquieting reports respecting the Western railroad situation, and old-time dullness returned. On Saturday the reduction in rates, both through and local, by the Chicago, Burlington and Northern, to take effect September 18, was expected to have a depressing influence on stock values, but as a matter of fact the decline was unimportant. Talk about the possibility of gold exports may have had some effect, but it was thought that little, if any, gold would be shipped abroad, despite the almost entire temporary suspension of exports. The unfavorable bank statement was anticipated. On Monday the market was heavy on news that the Western roads had decided to meet the cut of the Chicago, Northern and Burlington Railroad on Westbound business, it being announced that new conflicts were about to be inaugurated. A drop in Sugar Trust was conspicuous. Exceptionally favorable railroad earnings for August and continued good crop reports encouraged buying, even at a decline. On Tuesday business was dull and unimportant. A sensation was occasioned by the news that the C., B. and N. Railroad had leagued with the Lehigh Valley in a reduced tariff, the latter breaking away from the Trunk Line Association.

United States bonds are quoted as follows:

U. S. 4½s, 1891, registered.....	105¾
U. S. 4½s, 1891, coupon.....	105¾
U. S. 4s, 1907, registered.....	127
U. S. 4s, 1907, coupon.....	128
U. S. currency 6s.....	118

Money was based upon the depletion of the bank reserves by the drain to the interior for crop purposes. Time loans were in good demand at 4½¢ @ 5¢ on prime collateral for 60 days and 6¢ for six months. Trust stocks are carried for any time up to a year at 6¢, the borrower paying a commission and marking the security down ten points below the market price. Commercial paper is of slow sale, very few of the city banks buying. Rates are 5¢ @ 5½¢ for 60 to 90 day indorsed bills receivable. The bank statement last



week showed a loss of \$3,058,500 in cash, but the loans being increased \$2,870,900, the deposits were reduced only \$263,600. The surplus reserve was decreased \$2,992,600. The movement of currency to and from the interior was more active, with heavy shipments to the West and South. Chicago received about \$500,000 from Canadian banks. Offerings of bonds to the Government are insignificant and shipments from the Treasury on that account correspondingly diminished. As crop requirements will be large, this fact, together with an upward turn in exchange, has again started conjecture respecting the future of the market.

The posted rates for bankers' sterling are \$4.85½ for 60-day and \$4.88½ @ \$4.89 for sight. The market is firm. Leading drawers of exchange are expecting a heavy business before the close of the month at materially lower rates. At present commercial bills are scarce and there is a good demand to remit for securities sold for European account.

A statement prepared at the Treasury Department shows that the total amount of bonds purchased to date, since August 3, 1887, is \$199,253,800, of which \$80,478,250 were 4 per cents and \$118,775,556 were 4½ per cents. The cost of these bonds was \$231,538,366, of which \$103,075,394 was paid for the 4 per cents and \$128,462,972 was paid for the 4½ per cents. The total amount of bonds purchased under the circular of April 17, 1888, is \$174,908,000, of which \$75,390,050 were 4 per cents and \$99,517,950 were 4½ per cents.

Touching the silver question, the latest Government returns show that while the gold-certificate circulation has contracted about \$2,000,000 in the last 12 months, the circulation of silver certificates has increased over \$62,000,000, and the net holdings of gold declined from \$206,000,000 in August, 1888, to \$181,500,000 on the 10th inst. The foreign commerce of New York for August affords a gratifying exhibit, for while the imports were phenomenally large the imports show a relative increase larger still. The valuation of August imports makes a total of \$43,805,800, which is exceeded only in two instances in the comparison of the same month in former years. On the other hand, the exports for August show a total of \$34,544,000, the largest August shipments for any year since 1883. For eight months, exclusive of specie, the total is \$225,035,000, against \$220,844,000 for the same time in 1888. Specie exports meanwhile were \$60,714,000, as compared with nearly \$28,000,000 in 1888.

The clearings of 43 cities last week were \$1,066,209,435, an increase of 7.3 %. New York gained 9 %.

The general merchandise markets are quiet. Breadstuffs are weak, with little buying except for export. Cables are heavy. Corn is easier. Spot cotton is unchanged; demand light. Coffee is dull. Provisions are in moderate request; prices steady. Sugars strong, but unchanged. Ocean charters are slow, except grain to Liverpool. Exports of wheat from this port for the week, 333,000 bushels, and of corn, 427,000 bushels.

The Lehigh Valley Railroad Company have issued a special lake and rail tariff in combination with the C., B. and N. Railroad, to take effect immediately, governed by the official classification. To St. Paul, Minneapolis, Winona, Dubuque, La Crosse, Prairie du Chien, Galena and Savannah, as follows:

	1.	2.	3.	4.	5.	6.
From New York ..	\$0.66	.56	.47	.35	.30	.26
From Philadelphia ..	.60	.50	.45	.33	.28	.24

Special articles of iron and steel manufacture take fifth and sixth class.

## Coal Market.

The Anthracite Coal trade remains as for some weeks past, dull and unsatisfactory. Restriction at the mines is severely enforced, the production for the past week having been 703,000 tons, as against nearly 950,000 tons for the same week last year. Since January 1 the aggregate is hardly 1,000,000 tons below the production of last year for a corresponding period, showing that the necessity for a reduced tonnage was not discovered until the season was far advanced. The stock of Coal at tide-water August 31 was practically the same as July 31—viz., nearly 800,000 tons. According to the official statement, the shipments of Anthracite Coal in August were 471,879 tons less than during the same month in 1888, and the decrease for the year to date is 1,218,882 tons. Quotations are as before—\$3.90 for Broken; Stove, \$4.40; Egg and Chestnut, \$4.15, f.o.b.

Bituminous Coal is in demand, with some grades scarce. Straggling lots are found below pool prices. Cumberland shipments for the week were 69,000 tons. Reading reports 180,000 tons, of which 60,000 tons were sent to Port Richmond and 13,000 to Port Liberty.

Vessel freights are low, despite the loss of several coasters by the storm.

President Olyphant, of the Delaware and Hudson Canal Company, says the damage by the Wyoming cave-in will soon be repaired.

The extension of the Ontario and Western is expected to bring a business in two years from its completion of 2,000,000 tons of Anthracite per year, contracts for about 950,000 tons having been made already.

Agents of the Coal-carrying roads decided to make no advance in freights this year.

The Pennsylvania Coal Company propose to erect Coal-docks and receiving-pockets at Superior City, Wis., from which point they will distribute Anthracite to their Western customers.

## Imports.

### Hardware, Machinery, &c.

Boker, Hermann & Co., Mdse., cs., 39; Hdw., cs., 5; Arms, cs., 50;  
Bowring & Archibald, Mach'y, pkgs., 5  
Carnegie, Andrew, Mdse., cs., 5  
Degrauw, Aymar & Co., Chains, 5; ditto, cks., 8  
Folsom, H. & D. Arms Co., Arms, cs., 10  
Field, Alfred & Co., Guns, cs., 12  
Godfrey, C. J., Guns, cs., 5  
Graef Cutlery Co., Cutlery, cs., 5  
Hartley & Graham, Guns, cs., 32  
Kastor, A. D., Arms, cs., 5  
King, J. H. & Co., Sewing-Machines, cs., 40  
Lau, J. H. & Co., Arms, cs., 23  
McCoy & Sanders, Hdw., cs., 4  
Meacham, E. C. Arms Co., cs., 61  
Merchants Despatch Co., Arms, cs., 19  
McSorley, J. A., Mach'y, pkgs., 14  
Schoverling, Daly & Gales, Arms, cs., 44  
Safety Car Heating Co., Mdse., cs., 27  
Singer Sewing Machine Co., Machines in parts, cs., 21  
Tryon, E. K., Jr., & Co., Arms, cs., 10  
U. S. Water Purifying Co., Mdse., cs., 6  
Werlemann, H., Arms, cs., 25  
Webb, J. Barnes, Anchors, 2  
Wiebusch & Hilger, Lim., Guns, 10; Hdw., pkgs., 16  
Order: Cutlery, cs., 4

## British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, September 18, 1889.

Speculation in Pig-Iron warrants has been active, and business for consumption and export continues brisk. Manufactured Iron and Steel in nearly all forms are also selling freely, and prices are strong throughout. For Scotch Pig and Hematite prices have advanced sharply again, 7/ @ 8/ advance being asked for the lat-

ter, while 1/6 @ 3/ rise is quoted on most brands of Scotch.

Tin-Plate for prompt delivery has been active, with some transactions in large lots reported, besides ordinary orders to a good total amount. Orders are lacking for forward delivery, however, although higher prices are expected, but makers offer indifferently.

Merchant-Bar Copper has been rather dull during the week and three months' futures sold down to £41. 7/6, reacting to £42. The trade demands at present are moderate. There have been heavy arrivals from America. The bulk of the holdings of the French banks remain unsold and the quantity on hand is much larger than would be judged by the statistics of visible supply. The stability of prices, it is generally believed, depends upon the action of the financiers controlling those holdings. The Chili charters for the past fortnight as advised by cable were 1000 tons. Spot stocks have increased 235 tons. Furnace material has met with moderately active sale at somewhat lower prices. James Lewis & Sons' record for the first half of the month includes 200 tons American Matte at 8/6; 200 tons Montana Matte at 8/3; 50 tons American Matte at 8/1½; 850 tons Montana Matte at 8/, all to arrive at Liverpool. No sales of Anaconda Matte owing to the high prices asked.

The tendency of the Block-Tin market has been fluctuating and prices have been irregular. The "bulls" realized at the slight advance early in the week and soon after that some quite large lines were pressed for sale. The chief holders are now showing some unity, however, and appear inclined to make the best of the position. Trade demands are good now that the dock strike has ended and today's operations were at slightly advanced prices.

**Scotch Pig.**—The market is active and excited, with a further sharp rise on the best brands.

No. 1 Coitness, f.o.b. Glasgow .....	65/
No. 1 Summerlee, " " .....	64/
No. 1 Gartsherrie, " " .....	62/6
No. 1 Langloah, " " .....	63/
No. 1 Carnbroe, " " .....	54/
No. 1 Shotts, " at Leith .....	62/6
No. 1 Glengarnock, " Ardrossan .....	58/
No. 1 Dalmellington, " " .....	51/
No. 1 Eglinton, " " .....	50/

Steamer freights, Glasgow to New York, 4/; Liverpool to New York, 10/.

**Cleveland Pig.**—There has been a large business and the market is strong. No. 3 Middlesborough quoted 44/, prompt.

**Bessemer Pig.**—Large purchases have been made and the market is strong, with 7/ @ 8/ advance asked. West Coast brands, mixed numbers, 65/ @ 65/3, f.o.b. shipping point.

**Spiegeleisen.**—Business has continued brisk and the market strong. English 20 % quoted 82/6, f.o.b. at N. W. England shipping point.

**Steel Rails.**—Prices without further change, but the market strong and active. Heavy sections quoted at £5. 5/ and light sections £5. 10/ @ £6. 5/, f.o.b. at N. W. England shipping point.

**Steel Blooms.**—There has been a fairly active demand, and prices are firm. We quote £4. 10/ for 7 x 7, f.o.b. at N. W. England shipping point.

**Steel Billets.**—No further change, but prices firm and the demand good. Bessemer, 2½ x 2½ inch, £4. 17/6, f.o.b. at N. W. England shipping point.

**Steel Slabs.**—A moderate business doing at firm prices. Bessemer, £4. 10/, f.o.b. at N. W. England shipping point.

**Old Rails.**—There has been no change the past week. Tees quoted at £3. 15/ and Double Heads £3. 17/6, c.i.f., New York.

**Scrap-Iron.**—Demand only fair, but supplies moderate and held for higher prices. Heavy Wrought quoted £2. 12/6, f.o.b.

**Crop Ends.**—Demand has been good and the market firm. Bessemer quoted £2. 15 @ £2. 17/6, f.o.b.

**Tin-Plate.**—The market fairly active and strong. We quote, f.o.b. Liverpool:

1C Charcoal, Alloway grade.....	15/3 @ 15/6
1C Bessemer Steel, Coke finish.....	13/6 @ 13/9
1C Siemens.....	13/9 @ 14/
1C Coke, B. V. grade.....	13/3 @ 13/6
Charcoal Terne, Dean grade.....	12/ @ 12/6

**Manufactured Iron.**—There is a large business doing and prices are strong throughout. We quote, f.o.b. Liverpool:

Staff. Marked Bars.....	£ s. d. 8 10 0 @ 8 15 0
" Common.....	7 0 0 @ 7 2 6
Staff. Bl'k Sheet, singles.....	8 15 0
Welsh Bars (f.o.b. Wales).....	6 12 6 @ 6 17 6

**Copper.**—The market quite firm, but rather slow. Merchant-Bars quoted at £43. 5/, spot, and £42, three months' futures. Best Selected, £48.

**Tin.**—Rather better tone to the market to-day and more doing. Straits quoted at £90. 10/, spot, and £91 for three months' futures.

**Spelter.**—Prices have still further advanced and the market is strong. Quoted at £22. 10/ for ordinary Silesian.

**Lead.**—The market quiet but prices steady. Quoted £12. 12/6 for Soft Spanish.

## Foreign Markets.

### EQUIVALENTS.

	Cents.
Franc, Peseta or Lira.....	19.3
Florin (Netherlands).....	40.2
Florin (Austria).....	35.9
Milreis (Portugal).....	\$1.08.
Milreis (Brazil).....	54.6
Mark (Germany).....	28.8
Kilogram.....	2.205
Picul.....	134.

### CHILE.

VALPARAISO, July 19, 1889.—**Copper.**—Sales have been restricted to 6621 quintals for the fortnight at \$16.05 @ \$16.25. Rather than sell here mine-owners prefer consigning their Copper to Europe. The price of \$16 equals at 30/ freight £38. 17/3, cost and freight, per steamer. **Coal.**—Stocks are light and Australia is shipping less, hence Coal is commencing to look up at 37/6 Newcastle and 26/ Australian. **Exchange.**—Continues drooping and has now to be quoted 24 1/2 d for 90 days' sight on London.—Weber & Co

### EAST INDIES.

SINGAPORE, August 6, 1889.—**Tin.**—Supplies have continued on the increased scale noted on the 24th ult., and in consequence a larger business has been done than for some time past. The price has continued fairly steady between \$33.90 and \$33.60 per picul, the latter being the closing figure, at which there are buyers. Last month's shipments to all ports were moderate, but this month they are expected to be over the average, while a falling off is looked for in September and October, when, as is usual, supplies are slightly reduced. **Gum Copal.**—Moderate transactions in low-quality Macassar took place at \$6.50 @ \$6.75. The stock is large, but firmly held for higher prices. **Gum Dammar.**—There have been no arrivals to speak of. About 10 tons of old Malacca quality have been sold at \$14.75 per picul. **Tonnage.**—New York via Cape.—The Mariner has cleared, but the Evie J. Ray takes her place, and with the Carrie L. Tyler and Annie Stafford fills the berth. For Boston the Romanoff, in port, has been fixed to load on secret terms. **Exchange.**—Is weaker again at 3 1/2 % for six months' credit drafts on London. The following steamer **Tin Shipments** were made from here and Penang for New York: 1261 piculs per Glen Fal-

loch, 1345 per Coromandel, 2522 per Kashgar, and per Dardanus 840 piculs.—Gillilan, Wood & Co.

PENANG, August 1, 1889.—**Tin.**—Receipts reached 12,000 piculs during the fortnight. Europeans meanwhile bought 9800 and Chinese 5500. The market opened at \$33.30, thereupon Chinese paid as much as \$33.85, the market closing at \$33.80.—Schmidt, Kustermann & Co.

COLOMBO, August 1, 1889.—**Plumbago.**—Has remained very firm at following quotations in rupees, per ton: Large lumps, 145 @ 170; ordinary ditto, 125 @ 160; Chips, 80 @ 95, and Dust, 40 @ 65. Since October 1 shipments have been distributed as follows: To England, 130,049 cwt.; to Venice, 102; to Hamburg, 7816; to Antwerp, 12,642; to Bremen, 1254; to Holland, 437; to India, 139; to Australia, 392, and to the United States, 126,435; together, 279,266 cwt., against 215,440 in 1888, 214,858 in 1887 and 173,841 in 1886. **Exchange.**—Six months' sight 1/4 31-32. —Volkart Bros., Ceylon and Malabar Coast, through their agent in New York, Mr. John W. Greene, 82 Wall street

MANILA, September 9, 1889.—**Hemp.**—Our market has been steady at \$14 per picul, against \$10.25 same date last year, equaling per ton, cost and freight, £45, against £35. There have been no clearances for the United States since last cable, against 16,000 in 1888; since January 1, 152,000, against 125,000 bales; loading for ditto, 10,000, against 42,000; cleared for England since January 1, 203,000 bales, against 243,000; loading for ditto, 22,000, against 1000; cleared for all other ports, 32,000, against 51,000; receipts at all ports since last cable, 14,000 bales, against 28,000; since January 1, 410,000 bales, against 427,000 in 1888 and 334,000 in 1887. **Freight.**—\$5, against \$6. **Exchange.**—3/5 1/2, against 3/5.—Ker & Co., per cable direct to their agent in New York, Mr. Charles Nordhaus, 89 Water street.

### SPAIN

BILBAO, August 31, 1889.—**Iron Ore.**—The week has been more active, and higher prices have been paid for Campanil, of which several cargoes were taken at 8/7 and for forward delivery next year at 8/9. Some dealings also came to pass in Rubios at 7/1 @ 7/4. A good many steamers arriving in quest of cargo, shipments were larger than in previous weeks, the total now since January 1 figuring up 3,621,685 tons, as compared with 2,560,360 in 1888 and 3,070,218 in 1887. There is no further change in freights. **Pig-Iron.**—Coastwise shipments amounted to 1269 tons, and the export to 802.—Bilbao Marítimo y Comercial.

### BELGIUM.

BRUSSELS, September 7, 1889.—**Iron.**—In consequence of the further advance in coke and the orders for iron received from England Pig-Iron has improved 5 @ 6 francs per ton, and Finished 2.50 francs. Beams do not follow suit as rapidly, the chief makers having their own blast-furnaces. We quote Pig 5 @ 7.25 francs per 100 kg. as a range, and Merchant 13 francs.—Monteur des Intérêts Matériels.

### SWEDEN

STOCKHOLM, September 5, 1889.—**Pig-Iron.**—Iron Ore, Pig and Finished have been tending upward for three weeks past at the rate of 8/6 per ton per week. During the first seven months the export of Ore has been 626,440 metrical cwt. of 100 kg., against 351,840 same time last year; of Pig-Iron, 358,870, against 222,000; Castings, 118,800, against 102,530; Merchant Iron, 977,580, against 543,200, and Wire-Rods, 15,710, against 88,100. There is an active demand for Sheet-Iron and Nails. A petroleum steamer has been built here of 3400 tons capacity and 1600 horse-power, 325 feet in length, 40 feet in width and 27 1/2 feet deep, drawing 21 feet when loaded, for account of the Russian Steam Navigation and Trading Company, of Odessa, Russia, to carry petroleum to Asiatic ports.—Dagbladet.

### GERMANY.

HAMBURG, September 7, 1889.—**Iron.**—Pig has been rapidly improving in Rhenish-Westphalia. Fresh large orders have been received from the United States for Spiegel, which has improved, at 75 marks per ton for 10 to 12 % Forge Pig has now to be quoted 55 @ 67; for Foundry the range is 63 @ 72; White Steel, 66; German Bessemer, 66 @ 68; Thomas, 56 @ 58; Merchant Iron has been raised 7 1/2 marks per ton; it now commands at the locality where delivered, 150.50 @ 152.50. All branches in the finished iron branch are about equally loaded down with orders. This may also be said of foundries and machine-shops, and to some extent Car manufacturers participate in the activity noticeable. **Metals.**—Lead is firm and Spelter still rising.—Borsenhalle.

Among recently-authorized corporations in Illinois are the following: Oriental Enamel Company, Chicago; to do general

enameling business; capital, \$50,000; incorporators, William Sears, George A. Jones, Charles O. Walker. Frier-Cooley Mfg. Company, Chicago; to manufacture railway specialties; capital, \$15,000; incorporators, Proctor P. Cooley, John Frier, Conrad Frier. Elevated Railroad Construction Company, Chicago; to introduce a device for aerial cables, cable-grips, &c.; capital, \$500,000; incorporators, H. Casebolt, J. J. Starr, Frank E. Richey.

**Limits of Expansion.**—The following extract from a circular issued by the English builders of a high-speed engine said to run satisfactorily at 700 revolutions per minute and to develop 200 horse-power is interesting, since it attempts to confine the use of double and triple expansion to certain limits: "If the boiler pressure always exceeds 70 pounds, it is worth while to use a compound engine; if as high as 150 pounds, a triple-expansion engine. If the engine exhausts into a vacuum the corresponding pressures will be about one-fourth lower. The extent to which the steam may be expanded with advantage depends upon the boiler pressure. If the expansion is carried to more than a certain number of volumes it is advantageous to divide it into two stages—i. e., to expand partly in a high-pressure or small cylinder or cylinders and partly in a low-pressure or large cylinder or cylinders. With still greater expansion it is worth while to expand in three stages—i. e., in three successive cylinders of increasing diameter, and so on. But although there are great practical and economic advantages in the system of expansion in successive stages, there is no essential difference in principle between expanding, say, eight times, in a series of three cylinders, with a comparatively late cut-off in the first or smallest one, and expanding eight times in the largest of the three only, with the steam admitted to it direct and cut off at one-eighth stroke.

The statement is made by Stone that Boston parties talk of purchasing or leasing the Montpelier Slate Company's quarry and works, which have been standing idle since the death of the late Charles T. Sabin, and getting the works soon into operation. The average amount of slate manufactured per week during the operation of the quarry was about 100 squares, depending somewhat upon the condition of the stock obtained and number of hands employed. The largest size of roofing-slate was 10 x 20 and the smallest 6 x 12 inches, with a good assortment of intermediate sizes. Its color is black, uniform in shade, tough in quality and unusually free from flint or other foreign substance.

John T. Henthorn, Providence, R. I., has taken out a patent for an improved form of roof covering, designed more especially for use in connection with fire-proof structures. In the construction of the roof iron rafters are preferably used, they being supported by the walls of the building as usual. Secured at proper intervals to the rafters are metal purlins. Asbestos sheets lined with wire-gauze, or netting having comparatively fine mesh, are placed upon the purlins for the purpose of covering the roof. In order to render the roof perfectly water-proof the asbestos surface is covered with one or more layers of tar-paper, or equivalent material, followed by a mopping of hot tar. Finally the outer covering of metal is applied and the whole securely fastened together at suitable intervals by bolts which also pass through the purlins. In the case of engine-houses, dynamo-houses, &c., the metal covering is usually made of corrugated iron. A sufficient joint is secured by lapping the sheets along the edges so as to engage two or three corrugations.



## Hardware.

There is a good volume of trade, and the situation is regarded as satisfactory. Reports from the principal Hardware centers refer to the activity of trade, and from the South and Southwest they are especially gratifying. The prices of heavy goods, as noted below, are firm, and on some lines advances have occurred.

### Wire Nails.

The trade in Wire Nails cannot be referred to as having been especially active the past few weeks, but many orders have been booked and the aggregate is considerable. Notwithstanding the advance in the raw material there has been but little indication of firmness in the price of the goods, which have been held at low figures, whether compared with Cut Nails or with Wire. We are advised, however, that an effort is making to advance the price, and some of the companies are withdrawing their extreme quotations. The general price continues \$2.20 to \$2.25 for carload lots at mill, but some manufacturers refuse to give these figures. In some of the markets small lots are sold at a small advance beyond the price named above.

### Cut Nails.

Reports from other sections indicate a stiffening, and the same may be noted here, although it has not become quite general as yet. However, the rise in raw materials must soon, directly or indirectly, lead to an advance, even if those Nail manufacturers who are selling low on the strength of stock cheaply bought continue that policy. They cannot duplicate their contracts for Slabs within \$2 or \$3 a ton, which is equivalent to about 15 cents a keg, allowing  $7\frac{1}{2}$  per cent. waste. The first result will probably be a stiffening in Steel Nails all along the line, which has already taken place largely. Then Iron Nails are likely to follow, since thus far the cost of raw material for Iron Nails has not relatively risen as much. We quote carload lots \$1.80 to \$1.90, but may add that the former figure is likely to be withdrawn at any moment.

### Miscellaneous Prices.

The reduction in the price of Shot which we have alluded to as likely to be made was announced by the manufacturers on the 16th inst., the revised prices being as follows:

Drop Shot, per 25-pound bag.....	\$1.21
Drop Shot, per 5-pound bag.....	.30
Buck Shot, per 25-pound bag.....	1.46
Buck Shot, per 5-pound bag.....	.35
Dust Shot, per 25-pound bag.....	1.80
Dust Shot, per 5-pound bag.....	.40

The above prices are subject to a discount of 2 cents per bag of 25 pounds if paid within five days from the receipt of bill.

Many lines of heavy goods show indications of increased firmness in sympathy with the advance in iron and steel; thus Wire is notably higher; Screw and Strap Hinges are also advanced; extreme quotations on Fancy and Coil Chain are withdrawn; Wrought-Iron Pipe is regarded as likely to advance in the near future, and other lines are held with greater firmness, as special inducements recently offered have been withdrawn. In this condition of things careful and well informed buyers have already placed their orders, the market having been more decidedly in their favor a few weeks ago than it is now.

There is an evident improvement in the market for both Sisal and Manila Rope, which are held much more firmly. It is now regarded as improbable that there will be a further decline, and the goods

are regarded as having touched their lowest point. In this condition of things orders are being placed with much more freedom.

The market for Wood Goods, in view of the fact that the combination has been discontinued, is irregular and prices are notably lower. Manufacturers are desirous of securing orders and the market is in the buyers' favor.

The prices of Steel Goods are also lower than last season, but the indications are that they will not recede very much further. The narrow margin of profit would not justify much further shrinkage.

The manufacturers of Heavy Hammers and Sledges, as intimated, met last week, and we are advised that no action was taken to secure a continuance of the combination. While it is not formally terminated the market is regarded as irregular and weak, and it is thought not unlikely that manufacturers will soon announce prices free from the restrictions which have been placed upon them by the association.

The Screw market remains without open change, but there are indications that extra discounts are being given with somewhat more freedom than recently. The volume of business is regarded as fair.

For some time the market on Strap and T Hinges, as we have noted from time to time, has been weak and irregular, and of late, notwithstanding the condition of the iron market and the increased firmness in many lines of heavy goods, there has been a tendency on these goods to still lower quotations. But we are in receipt of advices from the McKinney Mfg. Company, Allegheny, Pa., under date September 16, that they have made a 10 per cent. advance in the price of these goods, to take effect at once. This advance is understood to be partly on account of increased cost, and also in good part owing to the very large demand for the goods.

The following is the price-list of the Morton Heel Stiffener Company, 99 Chambers street, New York, manufacturers of Morton's Patent Counter and Heel-Stiffener:

	Per gross pairs.
No. 1, small.....	\$15.00
No. 2, medium.....	15.50
No. 3, large.....	16.00
Assorted sizes.....	15.50

The above list is subject to a discount of 20 per cent. to the retail trade, special discount being given to jobbers.

E. H. Wayne, 422 Commerce street, Philadelphia, issues a circular announcing to the trade that he is placing on the market a 51-pound Beam of superior quality. The Beam is described as made of solid steel, with solid pivots, and finished in good style. It is not offered in competition with the numerous cheap grades of Beams, but for its merit, and is quoted at \$12 per dozen.

Walbridge & Co., Buffalo, N. Y., issue their autumn circular of seasonable goods, in which 60 pages are devoted to Apple-Parers, Apple and Kitchen Knives, Husking-Pins, Potato and Corn Hooks, Curry-Combs, Stove Furniture and Supplies, Fire-Sets, Coal-Vases, Ammunition, Arms and Supplies and other fall goods. Quotations are given throughout the price-list, either by list and discount or, as in most cases, in net figures. In the introductory circular these prices are referred to as low, there being many reductions from the former figures. The following are the quotations given on Parers:

Eureka, '88, each.....	\$17.00
Dandy, each.....	7.50
Rocking-Table, per dozen.....	5.50
Little Star, per dozen.....	4.00
Gold Medal, per dozen.....	4.00
Improved Turn-Table, per dozen.....	3.20

E. T. Fraim's Keystone Patent Scandinavian Locks, Nos. 119, 120, 130 and 140, are sold at discount 90 and 10 per cent., the other goods being subject to a discount of 65 per cent. These goods are manufactured by the Keystone Lock Works, Lancaster, Pa., for whom Surpluss, Dunn & Alder are agents, 97 Chambers street, New York.

### Items.

We are in receipt from Stafford & Rix, Keokuk, Iowa, whose retirement from the Hardware business was duly announced some time ago, the following letter, which explains itself:

We have been out of business now nearly five months, and although we have given the fact all publicity possible, each mail still brings in not only our full quota of circulars and catalogues of every description, but also many carefully prepared and "strictly confidential" letters quoting page after page of prices, &c. If you will kindly publish the fact again of our retirement from the Hardware business I know you will do us a great favor by relieving us to some extent of the above, and I believe the trade by saving them time, labor and postage.

The Eureka Clothes Wringing Machine Company, T. J. Alexander, agent, Boston, Mass., have sold the trade-mark and goodwill of their business to the Bailey Wringing Machine Company, Woonsocket, R. I. This company, alluding to the matter, state that they are increasing their facilities and making such arrangements as will enable them to produce Wringers in quantities sufficiently large to fill all orders promptly. They refer also to the Eureka as having been well and favorably known for more than a quarter of a century, and state that its former high standard and quality will be maintained.

S. L. McBride having retired from the management of the Gate City Stone Filter Company, 46 Murray street, New York, is succeeded by J. A. Davenport as general manager. Mr. Davenport has been actively connected with the company for some time and the administration of its affairs will continue without important change. The company are referred to as in a flourishing condition, the Filter becoming more and more popular the better it is known.

The Never-Slip Horse Shoe Company, 36 India Wharf, Boston, Mass., publish matter describing their Shoes and giving directions for their use. These Shoes, which have been on the market for about four years, have removable calks, which are inserted by the owners, it not being necessary to send the horse to the blacksmith or horse-shoer unless the Shoes require resetting. The calks are made in different lengths of the same size, thus permitting the use of long or short calks, as desirable, without changing the shoe, or blunt or half-blunt calks can be substituted when sharp ones are not wanted. On account of the peculiar conditions under which these goods must be sold and used in order to secure successful results the company do not generally sell goods to the Hardware and blacksmiths' supply trade; but the goods are handled through agents, who are also dealers in blacksmiths' supplies, to whom certain territories are given to be canvassed by their traveling salesmen. Among these we observe the names of several Hardware men, while they have also local agents among the leading horse-shoers in different parts of the country. The company refer to the success which they are meeting with their Shoes and recommend their system with confidence in its utility and practicability.

Hibbard, Spencer, Bartlett & Co., Chicago, Ill., issue a 64-page catalogue of Silver-Plated Hollow and Flat Ware. In the opening circular it is announced that they have secured the Western agency for the Derby Silver Company, Birmingham, Conn., to the quality and finish of whose

goods they especially refer. The line is alluded to as complete, comprising all the latest novelties and most saleable staples. They do not attempt to illustrate the entire assortment, but have selected goods at lowest lists and of most saleable patterns. These are appropriately illustrated, and the pamphlet will be found convenient.

Rector & Wilhelmy Company, Omaha, Neb., have issued a 50-page price-current devoted to fall goods, of which a large assortment is shown, including Stove and Fire Goods, Meat-Cutters, Lanterns, Lamps, Saws, Sleighs, Skates, Weather-Strips, Silver-Plated Ware and Cutlery, Washing Machines, Apple-Parers, Ammunition, Gun Implements, with many other lines and some specialties. Quotations are given in cipher, a key to which is prefixed on a separate sheet. They also call attention in a circular to some Stoves which they are offering at 10 per cent. discount from factory prices.

Sandwich Enterprise Company, Sandwich, Ill., issue a circular calling attention to their Windmills, Force Pumps, Bash Surface Cultivators, Dean Ear Corn-Cutters, Handy Carts, &c.

The announcement on page 54 of Haydock & Bissell, the Hardware auctioneers, 12 Murray street and 15 Park Place, New York, of a sale on Thursday and Friday of next week, is deserving the attention of the trade. It will be seen that it relates to an important line of Table and Pocket Cutlery, Plated-Ware, 50 cases of Cross-Cut Saws and other goods.

Keystone Lock Works, E. T. Fraim, proprietor, Lancaster, Pa., for whom Surpluss, Dunn & Alder, 97 Chambers street, New York, are general agents, have issued an illustrated and descriptive catalogue of the Keystone Patent Interlocking Tumbler, Malleable-Iron, Brass and Bronze Jail Padlocks. It is a well-printed pamphlet of 25 pages, representing the different patterns, giving list prices, &c. It is to be noted that the illustrations are all full size. Their system of interlocking tumblers is also explained, with illustrations making plain the special features of this portion of their Locks, these tumblers being used in all Locks manufactured by them. The completeness of the line thus offered is noticeable, including as it does the goods which have recently been added, Nos. 510, 520, 511, 530, 512, 540 and 611, the latter being solid real bronze metal, with all-brass tumblers, secured shackle.

We are advised that under patents recently granted the Clement Mfg. Company, Northampton, Mass., are making Hollow Steel Handle Screw-Drivers in a variety of sizes from 2½ to 12 inches, which are designated as the Vulcan Screw-Drivers. The company are also prepared to make other articles which it is desirable to have hollow and seamless 18 gauge and heavier.

John Pritzlaff Hardware Company, Milwaukee, Wis., have issued a magnificent catalogue illustrating the line of Hardware, Cutlery, Iron, Metals, &c., which they are handling as jobbers and importers. It contains an excellent steel engraving of John Pritzlaff, the founder and head of the concern, and gives an illustration showing their enlarged establishment, with a frontage on West Water street of 170 feet and on Fowler street of 298 feet. The volume, which is well printed and substantially bound, contains 1182 large pages, which are copiously illustrated with cuts which show the goods off to advantage, while they are for the most part of moderate size, permitting the display of exceptionally complete lines. The effort has obviously been to illustrate and describe in a plain, compact and business-

like way the various Hardware carried by them in stock, the manufacturers' lists and numbers being used as far as possible. The method followed in the arrangement of the volume, which, covering so extensive a line of goods, is a delicate and somewhat difficult task, is indicated in the fact that the following departments are used in the classification:

No. 1. Mechanics' and Edge Tools.....	1 to 228
No. 2. Locks, Latches and Builders' Hardware.....	229 to 560
No. 3. Farming Implements and miscellaneous Hardware.....	561 to 860
No. 4. Pocket and Table Cutlery, Razors, Scissors, Shears, Revolvers, Ammunition, &c.....	861 to 992
No. 5. Granite - Iron, Japanned, Pieced and Stamped Tin-Ware, Tinners' Tools and Stock.....	993 to 1,122
No. 6. Iron, Steel and Blacksmiths' Hardware.....	1,123 to 1,182

A pleasant effect is produced by an accurate reproduction in gold and color of labels on some goods. In a circular which accompanies the catalogue attention is called to the fact that last season's enlargement of their store-rooms enables them to care for their largely increased trade to the satisfaction of their customers, and they allude to their low prices, prompt shipments and the attention given to mail orders. We take pleasure in thus noticing an exceptionally complete and well-prepared Hardware catalogue, which will be found a valuable aid to those who receive it.

A. J. Jordan, St. Louis, Mo., reports an unusually heavy demand for his AAA 1 Razor and informs us he is receiving some good-sized duplicate orders from dealers who first ordered sample lots, showing their appreciation of the goods.

Buhl Stamping Company, Detroit, Mich., issue a catalogue describing their line of Japanned Bird-Cages, which they refer to as of a cheap and medium-priced class and quick selling. The workmanship and finish are also alluded to. A number of attractive styles are represented. The catalogue also refers to their Disinfecting Pail, described elsewhere, Cheese Factory and Railroad Milk-Cans, the Schultz and Buhl Tubular Lanterns and other goods.

The Freeman Wire and Iron Company, St. Louis, Mo., issue a circular describing the principal articles of their manufacture, with remarks on the condition of the market, in which the recent advance in Iron and Steel is alluded to.

Harris Metal Wheel Company, Auburndale, Ohio, have issued a catalogue describing their Express Wagons, Velocipedes, Toy Barrows and similar goods, of which illustrations and list prices are given. They allude to the fact that they have made several improvements in their line and call attention to the quality of the goods and the superiority of their finish.

California Wire Works, San Francisco, Cal., have issued a handsome catalogue illustrating their extensive line of goods. It is divided into departments representing Wire, Telegraph Supplies, Bale-Ties, Wire-Gauges, &c., Wire Nails, Barb-Wire, Wire-Rope, Rope-Ways, Wire-Cloth and Galvanized Netting, which are conveniently referred to by a side index running through the book. A number of blank pages for memoranda are added at the end. This will be found an exceptionally complete and satisfactory catalogue relating to this important line of manufactures, and shows the enterprise of the house issuing it and the extent of their business.

#### Stock-Taking Methods.

In reply to the inquiry of our correspondent which was published in our last issue in regard to a method of inventorying goods, especially with reference to charges for freight, which, particularly in the far West, are often a considerable proportion of the cost, we have received a

number of suggestions from houses in the trade. A jobbing house in Pennsylvania describe their method as follows:

In taking an account of stock we take the value of the merchandise at the prices ruling at the time, say January 1. As regards freight, we add it to the prices of heavy articles, like Horseshoes, Nails, Bar-Iron, but do not take any account of it in pricing general Hardware. As the aim and purpose of stock-taking is to determine the actual cash value of the merchandise on hand, we deduct 5 per cent. from the total to allow for depreciation and errors.

Another wholesale house in Ohio refer in more detail to freight charges and explain the principles which govern them in taking account of stock:

Strict account of amount paid for freight from year to year shows us that a safe average for freight, boxing and drayage is about 5 per cent. We net the cost price of shelf goods such as are not delivered and add the 5 per cent. To Iron, Nails and heavy staples, such as sell rapidly, we add actual freight, using rate current at time of inventory. We always take cost of goods in an advance market and market price in a decline excepting staples that sell quick and are bought often; these we take at market value. This we believe to be correct for the regular yearly inventory. If we were invoicing to sell out, of course, we would have to be governed by what our buyer was willing to pay or how well he was posted. Example for inventory—say your inventory of January 1, 1889: you sell your business to the year 1890; now, if you charge 1890 too much, when you come to sell to 1891 there will be less chance for a good year's showing than if you sold to 1890 at a correct or reasonable price.

A Massachusetts retail house write as follows:

Nearly all of our goods are bought delivered in Boston, so that the freight account is a small item. Express charges on goods we always add to the cost. I have always thought that in a stock account where goods were not delivered free the account should be added to the value of the stock in one amount, or, after a careful examination, a certain per cent. added. Still, I never heard of its being done. We shall be pleased to have ideas of others. We like the idea of interchange of thought.

Another correspondent in Massachusetts refers thus to his methods:

In taking stock we always add freight to heavy goods, but being quite near market on other goods we do not. Butts, Screws and such goods we figure list and discount at the time of stock-taking. Other goods we take at actual cost, as they do not vary very much from cost.

In the following letter a New York Hardware house call attention to the fact that the charges for boxing and cartage often exceed the cost of transportation, and explain in some detail their method of inventorying, especially goods which have changed in price since their purchase:

We find in taking account of stock many goods marked at a higher or lower price than the market price at time of inventory; these goods are always extended at the market value at inventory time. Regarding the item of freight (and by the way the cost of boxing and cartage is often more than the freight charges), that is added to the cost of most goods, except the miscellaneous shelf goods, upon which it is difficult to arrive at the exact cost of so many small items. At our city, with freights quite regular, we have no trouble in knowing the exact cost of our goods. Whenever a marked change in price of goods occurs we remark our stock accordingly shortly after the changes take place and we are convinced the advance or decline will be permanent. In a



retail business it is quite important to keep your stock marked at the real market value.

Our correspondents below, who are a well-known house in Massachusetts, alluding to the freight charges, call attention to the point that they are proportionally growing less every year, owing to the fact that more goods are delivered or given a more liberal freight allowance than formerly. The letter also indicates the careful and accurate system with which their business is conducted:

We take our inventory the last ten days of January each year, because at this time trade is the lightest, our stock can be reduced with least injury and our books are the clearest. We inventory goods at "present market price" without regard to what they may have cost us, and have never added freight to cost in inventory except on extra-heavy or bulky goods, such as Wagon Rims, Spokes, Gearings, &c. We find the freight costing us this year about  $3\frac{1}{2}$  per cent. on the cost of goods. The percentage is, of course, yearly growing smaller, as the lines of goods which we buy "delivered" or with "freight allowance" are constantly increasing. Reference to our inventory books, which we have preserved for over 30 years, reveals astonishing changes, and some of them are interesting reading, for instance, 1868:—dozen Maydole A E Hammers No. 1, \$14 dozen net.

The following letter from a house in Massachusetts will be read with special interest, referring, as it does, to a laxity which is too often found in business methods, while at the same time it gives definite suggestions in regard to the management of freight and other charges in connection with stock-taking:

The letter in your issue of the 12th inst making inquiries as to the best method of stock-taking deserves the attention of the trade East as well as West. The "easiest" method which ever came to our knowledge was a certain firm in the East, composed of two members. When the time arrived the two partners, with note-book and pencil, would start at a line of shelf goods with about the following conversation:

No. 1: "How many dollars' worth on this shelf?"

No. 2: "\$123.50."

No. 1: "There's more than that. I say \$145."

No. 2: "Well, call it \$135."

And down it would go at \$135. That firm is not in business at the present time. From this extreme case each firm varies as to the accuracy of its invoice up to the other extreme, where the firm will spend a dime's worth of time to ascertain the correct value of a nickel's worth of goods. Of course the latter extreme is the better error.

We have found in such a case as that by our Western brother, where the freight and charges on goods which sell from list are concerned, that the easiest method is to make a note of the per cent. freight and charges amount to on the list—i. e., if on \$1000 worth of Sargent's goods these charges are \$64, at 50 and 10 and 5 per cent discount the goods would net \$427.50; the freight would be 15 per cent. on the net and  $6\frac{1}{2}$  per cent. on the gross or list. Make a note on Sargent's list against those goods that freight is  $6\frac{1}{2}$  per cent., and when stock is taken it will be an easy matter to get freight even if the discount has changed. This is not without some trouble, but as freight charges are not so liable to change as discounts on this line of goods we have found no better way. We trust that some member of the trade will give us a better solution of the question.

#### Obituary.

J. C. Hollis, who was for many years a Western representative of the Millers Falls Company and the Bemis & Call Hardware and Tool Company, was widely known to the trade, to whom the tidings of his

death a few weeks ago caused sincere sorrow. For more than 21 years he was connected with the Millers Falls Company as their salesman in the West, and his fidelity and efficiency as well as other traits made him to be held in high appreciation. His hopefulness and genial good-nature were generally recognized, and a well-known Detroit house refer to him in the following kindly terms:

We deem it not out of place for us to send you this brief note bearing our testimony to Mr. Hollis' many good qualities. We were always glad to see him and thoroughly enjoyed his hearty greetings, in which every one in the store participated. His cheery good-nature never seemed to fail him and his sincerity never could be doubted. We are certain that every Hardware man on his route will miss our old friend Hollis.

#### Arrangement of Stores.

From J. F. Small & Co., Corinth, Miss., we have received a drawing of the Belt rack illustrated in Fig. 390. The rack occupies floor-space similar to a counter and the compartments should be 1 inch wider than the size of Belting for which they are intended, which permits their use when the rolls are received in bad condition. A size  $\frac{1}{4}$  inch larger than that intended for a compartment may also be accommo-

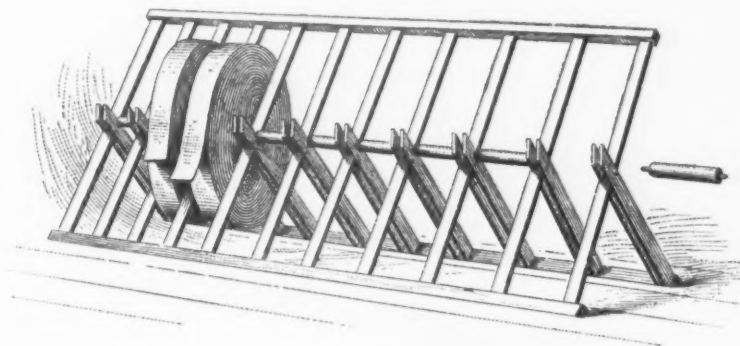


Fig. 390.—Belt-Rack.

dated in this way. We are informed that Messrs. Small & Co. have been using this rack for the past ten years with great satisfaction.

#### Men of the Road.

The following interesting and suggestive address was delivered recently at the annual meeting of the salesmen of the Woolson Spice Company, Toledo, Ohio, by W. H. Maher, whose "Man of Samples" has been read so widely through the trade:

It seems to me that I could face a miscellaneous audience to talk upon commercial travelers without fear, and that I could draw from my own experience and from what I have heard others say on this topic enough to make the talk have some interest for that audience. But when I am asked to speak about commercial travelers to men who have been, who now employ, and who are commercial travelers, I am sure if you put yourself in my place you will see I might well shrink from the task. And I assure you I do. Next to the mother-in-law the "drummer" has been the occasion of more so-called wit than almost any other class, and it is but rarely that he is the subject of a toast or of a speech when he is not held up to ridicule, while the references to his cheek and his exaggerations invariably bring down the house.

For many reasons I am unable to handle the subject in this popular manner. I was for many years on the road myself. I have a large acquaintance with traveling men, and I do not care to cater to the idea that a traveling salesman is a fit subject only for

joke and burlesque. They say that in the late school examination the son of a coal-dealer was asked how many pounds there are in a ton of coal. He was sharp enough to reply: "Maybe you think I'm going to give it away and get licked when I get home!" Now if there are any secrets in the life of a commercial traveler I propose to give them away, whether I get "licked" for it or not.

A Boston merchant met his traveling man after the latter had been a week on the road making valuable acquaintances. "Did you get any orders?" he asked. "Any orders?" echoed the new man. "That's the whole—trouble; that's all I did get. I was ordered out of every store I went into before I could sell a thing. Oh, yes, I got orders enough, if that's all a fellow wants."

There are a great many people who look upon the matter as this man did; they want more sales and less ordering, and to make these sales they send men out on the road.

Back in war times, when business seemed to run itself, almost any man could go out and sell goods. Wages were high, profits were large, people lived on a broad-gauge basis. A man who could write a letter had a sufficient education to go on the road, and those of us who recall those days plainly will remember that among the

small army of drummers was a large percentage of young fellows who seemed to be traveling solely for their health. With the change in financial affairs, the curtailment in business, the lessening of profits and the increased competition for trade, the weeding process began, and the loud-mouthed, shallow-brained fellows were sent to the rear and finally dropped out of the ranks of traveling salesmen. To-day commercial travelers are fairly representative of the average business man, because they are business men, or if not they are failures.

They are a class peculiar to themselves, but still they are the class from which our business men select partners, and there are few houses to-day that are not managed by men who were fitted for their present duties by their years of experience on the road. It is exactly the experience needed to fit a man to be a good merchant, if the right stuff is in him. There are few concerns who sell to every buyer at exactly the same prices and on the same terms. There are places where some slight concessions are necessary; there are men who are not entitled to bottom prices. When these men come to the factory, or to the wholesale house, the proprietor decides if concessions shall or shall not be made, and the salesman acts accordingly. But when the salesman starts on the road he must settle these questions for himself. The concern he represents is carried from town to town under his hat. He must decide as to credits, as to prices, as to quantities safe to send, and often as to legal proceedings upon overdue claims.

These powers cannot be delegated to a

shallow, loud-mouthed man, as the newspaper "funny" man so loves to picture the drummer. They require capacity, and the field is the best in the whole realm of business in which to educate a man and increase his usefulness. A man of experience can quickly gauge the men at the head of a house by the men sent out on the road by them. The wishy-washy merchant figures that two \$600 men are a better investment than one \$1200, but this class is the one forever mourning over the way traveling men slaughter goods and ruin trade.

There is no doubt in my mind that traveling men are much to blame for the demoralization existing in price, but the men employing them are far more blameable. Men are sent out with but one order, to meet prices. This looks simple, and in the hands of an interested man is simple, but as construed by most salesmen it not only means to meet competition, but it means to beat competitors. The house keeps account of all sales, but very rarely of profits; the man who sells the most is petted and patted on the back before his fellows, while another man who made more dollars and cents for the concern feels that he is lucky in not getting discharged.

Manufacturers are popularly supposed to sell every man who buys the same quantity at the same price. When the salesman whispers in my ear that he is giving me 5 per cent. better than he does the largest house in Chicago I always thank him, but have my doubts as to the 5 per cent. Of course if all men are selling at identically the same price the one who sells the most is the best man. But with jobbers prices vary; if the salesman cannot get all he wants he is wise to take what he can get, and the size of a bill or of a year's trade is no criterion of profit. I remember looking with awe upon a man who was on the road in my day, and who sold \$3600 worth of boots and shoes to one of my customers. It was told all along the road, and he was hailed as a lightning salesman. But I afterward learned that he made exactly 1 per cent. on the bill, and that the sale was all for glory. But his praises were sung at home and abroad, while a quiet fellow who made 15 to 20 per cent. on every sale he made was never mentioned.

Business is full of just such injustice as this. The lightning salesman is paid the best salary, and for this he demoralizes prices and ruins trade. Were his salary based upon his profits he would quickly drop to the rear, but too often the head of the house is as anxious for the glory of large sales as is the traveling man, and encourages him to send in his big bills, though he mutters to his partner about the lack of profits. It is a common saying that any fool can give away goods, but that it takes a smart man to sell for a profit. Most of us know this to be true, yet the practice is to pay the large salary to the fool.

When there is no back-bone in the head of the house there is rarely any in the man on the road. It is so easy to cut prices, one wonders at himself that he ever resisted the temptation. If there is any dread of fault being found at home, it is easier to cut than to remain firm, and a cut in one store paves the way for a cut in the next. Two merchants were discussing business. Said one: "Everything is cut, even patented specialties. Here's an article that cost us \$3.75, and our men are selling it at \$4; it ought to bring \$6, there are so few sold." "Do your men sell at \$4? Why, we sell at \$5.50. We sent some of them to Blank to-day at that price." "That place is where ours went," said the other; "how do you get such a price?" "Well," said the other dryly, "I suppose it is because we ask it principally, and my man knows if he sold for any such fool price as \$4 the order wouldn't be filled."

I am not good at morals, but I think there is one in this conversation, which is truthfully reported. The man who knows his prices will be carefully watched and criticised will strive to get the best he can; while he who knows that his order will be filled and nothing said, be the prices good or bad, will go on cutting, and imagine himself a success because he gets an order by giving goods away. I know of no school, no business college, no position which offers the same opportunity for education and advancement as does that of traveling salesman. He must be dull indeed who can learn nothing from the men he meets daily. The bright minds of the world are not by any means to be found solely in the city. In the country store are men who read and think, something most of us have little time for in the city. I am reminded of the answer given by the little girl when her teacher asked her, "What is memory?" "It is the thing you forget with," she said; and those of us who shoulder the every-day cares of a city business know that this answer is wonderfully true.

To the man on the road questions arise that never meet the house salesman; questions as to methods of doing business, as to means to ends, as to the policy to pursue in a business course. He is daily and hourly listening to men's experience with men, and he is learning details that cover every phase of commercial life. If his head is not full of wood or putty he is laying up a store of experience that shall be of immense value to him. There is no position that honestly demands so much of man's time and thoughts. His employers have a right to demand that his thoughts, his whole thoughts and his whole life while on the road shall be given to the furtherance of their business. Men build up trade for their houses often by simply being sociable and friendly, and the men who succeed as salesmen and who in turn become successful merchants are those who never found a day too long for their work on the road.

The man who looks back over a quarter of a century of business recollections, as many of us here can do, is surely pained by the histories he recalls and the failures he has known. But this one thing stands out clear in his mind: The men who are fearful they would work too many hours, or who had time for anything on the road but hard work, dropped out of sight and have long been lost. But those who were early and late at their business, honest with their employers as with their customers, studying how to increase their trade and make money for the house, these men are in business for themselves to-day, if alive, and are the ones who best appreciate the efforts their salesmen make in their behalf.

I have had extensive and extended acquaintance with the man who proposed to build up his trade by patronizing saloons and taking a drink to start business, another to keep it going, and several at the end. I do not now recall one of them who persisted in this who succeeded in holding the trade he had thus built, nor do I recall one who did not end by disappearing from sight or filling a drunkard's grave. It is playing with fire, with all the odds against the player.

I have had large acquaintance with men who prided themselves upon their full and exact knowledge of every loose woman in every town on their route. I can recall the way in which these men ignored those who did not join their ranks, as being too thick-headed for even an hour's talk in the hotel, and I can see the jaunty way in which they told of their escapades, as if they fancied themselves the princes of the profession. But I also remember the way in which country merchants spoke of them, and how they changed from house to house, till at last they were lost to sight.

The truth is, and it is the one truth to be constantly borne in mind, the same business quality that makes a man a successful merchant, the same character that makes a man trusted by his fellow-men, the same habits which are the foundations of prosperity to the prosperous merchant, are alike needed by the traveling man if he would make his life and his work a success.

Now, one word personal to you gentlemen who are building a market for the products of the Woolson Spice Company. No man can be greater than the house he represents, but a reputable house, a strong house, gives reputation and character to the men representing it. The factory you represent is the one of which Toledo is most proud. It is owned and controlled by her foremost business men; it has a magnificent reputation for the liberal yet conservative way in which it has been managed and for the immense business it has secured, as well as for the quality of its products. Let me assure you that if there is one thing more than another needed in a traveling salesman it is loyalty to his house. The man who goes on the road criticising the firm he works for is whipped at the start. Most of us are apt to fancy that if we could run the world awhile it would be run exactly right, and we spend more time grumbling about the way it is run than would take to set our world right. Some of us reach a place where we are able to test our ability in running things, and we suddenly discover that while we have succeeded in getting the concern free from the error that formerly troubled us we have also succeeded in making greater blunders in another direction. My injunction to you, then, is—be loyal to your house; believe in the men at the head of it. Work for your own interest, and be sure that the safest and quickest way to advance this is to identify yourself with your business, and every step forward you take in advancing its prosperity is a step forward for yourself.

If there is anything connected with your business that you do not know, you are unwise to lose a day until you have learned it. Know your goods thoroughly, their growth, their various properties and peculiarities, the process of preparing them for market and everything in regard to their sale that can by any possibility interest a wide-awake merchant. There are facts to be picked up everywhere and possibly one that I saw lately about the making of coffee may be as new to you as it must be valuable.

The servant put her head in the door to say: "Will you please git me out de coffee? De water is been a boilin' dis last half hour." The young wife wanted her husband, who was present, to see how thoroughly she understood her business, so she said, calmly: "Let the water boil, Matilda; the longer it boils the stronger it will be."

They tell of a man who, under cross-examination, was asked by the attorney, "Now then, sir, does the last witness enjoy your entire confidence?" "Great Scott, no! Why, that's my wife!" I sincerely trust that most of you gentlemen have wives who have your entire confidence, and that those who have not will soon join the ranks of the married, and I adjure you by all the hopes you have of future happiness with a pure woman to keep your own lives pure, so that you shall have nothing to conceal and that you may give her your entire confidence.

They tell of a lady whose husband was elected to Congress, and who asked a neighbor if he thought it was safe for him to live in Washington. "Safe!" he rejoined; "well, I should say so; it is the only place in the country where a man can steal with positively no risk of being sent to State's prison for it." The times demand honest men everywhere except in



Congress, and no position demands it more than does yours. But above all else be honest with yourself. With a long life before you, make every day now count toward your final success; increase your usefulness, add to your education, study men, but also study books; do not draw on the future by indulgence in habits that shall destroy your health or your character, and do not dream for a moment that your salary is the only thing you have to consider in life.

Above all, waste no time in regrets. Thank God every day of your life that you have health and strength and envy no man his riches or position. Nine-tenths of the pleasure to be found in money is in the making of it, and that pleasure is before every man if he will have it. In this country no one can keep you poor but yourself. But there is a greater success than that of mere money-getting; it is in winning the respect of your associates, the confidence of your friends, the love of a good woman and the approving conscience of yourself. These outlast money and are a noble estate. And this I heartily wish to you all.

### Exports.

PER BARK HARVARD, SEPTEMBER 3, 1889, FOR ADELAIDE, AUSTRALIA.

By Strong & Trowbridge.—1 crate Wheels, 1 case Tin Ware.

By A. Field & Co.—9 dozen Tin-Ware, 6 dozen Mouse-Traps,  $\frac{1}{2}$  gross Presses,  $\frac{1}{2}$  gross Scrapers, 3 Refrigerators, 25 dozen Wash-Boards, 6 Mangles.

By McLean Bros. & Rigg.—1 dozen Money-Drawers, 600 dozen Axe-Handles, 4 dozen Scissors, 1 dozen Cork-Pullers, 4 dozen Meat-Choppers,  $\frac{1}{2}$  dozen Pistols.

By R. Irwin & Co.—3 packages Plated-Ware. By Sewall & Day Cordage Company.—2165 pounds Rope.

By Maillet & Queveau.—20 bundles Wash-Boards, 5 cases Handles, 100 bundles Wash-Boards, 12 boxes Wringers, 25 boxes Wagons, 8 cases Cultivators.

By H. W. Peabody & Co.—2 cases Hardware, 84 dozen Har dles, 72 packages Barrows, 560 pounds Packing, 9 cases Lamp-Ware,  $\frac{1}{2}$  dozen Wringers, 1 case Perambulators, 1 case Hardware, 500 Handles, 1 case Hardware, 1 case Fire-Arms, 103 dozen Handles, 1 crate Stamped-Ware, 4 cases Edge Tools, 10 dozen Wash-Boards, 3 cases Perambulators, 1 case Plated-Ware, 1 dozen Wringers, 1 case Hardware, 1 case Agricultural Implements, 4 cases Stamped-Ware, 7 cases Hardware.

By W. H. Crossman & Bro.—88 packages Carriage-Ware, 6 gross Axle-Grease, 2240 pounds Axle-Grease, 51 dozen Axes, 6 gross Axle-Grease, 2240 pounds Nails.

By Arnold, Cheney & Co.—1 case Children's Carriages, 3 cases Children's Carriages.

PER BARK MARY S. AMES, SEPTEMBER 3, 1889, FOR AUCKLAND, NEW ZEALAND.

By F. B. Wheeler & Co.—4 dozen Axes, 1 box Hardware, 20 Pumps.

By R. W. Cameron & Co.—23 cases Blacking, 94 packages Agricultural Implements.

By Coombs, Crosby & Eddy.—9 dozen Handles, 4 dozen Spades, 19 dozen Hay-Forks, 1 case Hardware, 4 dozen Apple-Parers, 2 dozen Spading-Forks.

By Arkell & Douglas.—2 cases Hardware, 23 cases Handles, 9 cases Edge Tools, 8 packages Lamp-Ware, 16 cases Hardware.

By Crane & McMahon.—1 case Handles.

By W. H. Crossman & Bro.—1  $\frac{1}{2}$  barrels Lamp Goods, 2 dozen Churns, 32 dozen Handles, 12 dozen Traps, 4 dozen pairs Ox Bows, 12 dozen Wash-Boards, 33 dozen Axes, 1500 pounds Horse Nails, 2500 Belt-Hooks, 38 Emery-Wheels, 150 pounds Nails, 1  $\frac{1}{2}$  dozen Wringers, 4 Corn-Shellers, 14 dozen Cow-Bells, 12 dozen Traps, 1 case Plated-Ware, 7 dozen Traps, 2 cases Hardware, 36 dozen Handles, 7 dozen Hammers, 1 dozen Hay-Knives, 2000 pounds Nails, 1 dozen Parers, 3 Plows, 4 cases Hardware, 60 dozen Handles, 1 case Scales, 3 cases Lamp Goods, 16 packages Lamp Goods, 54 cases Fruit-Jars, 100 gross Paper Caps, 75 gross Toy Pistols, 1 dozen Corkscrews.

By Arnold, Cheney & Co.—100 dozen Wash-Boards.

By A. S. Lascelles & Co.—2 cases Hardware, 13 cases Wagons, 22,400 pounds Barb-Wire, 50 dozen Wash-Boards, 6 gross Blacking, 1 case Hardware.

By R. W. Forbes & Son.—244 pounds Sash-Cord, 6 packages Plated-Ware, 11 packages Hardware, 2 cases Pencils, 3 cases Kitchen-Ware, 5  $\frac{1}{2}$  gross Scales, 2672 pounds Carriage-Bolts, 1 case Kitchen-Ware, 100 pounds

Wagon-Springs, 1 dozen Sad-Irons, 1 case Pumps, 10 packages Stoves, 3 packages Hardware, 30 dozen Forks, 1 case Bird-Cages, 2000 pounds Horse-Nails, 5 packages Choppers, 6 packages Agricultural Implements, 2 packages Wringers, 8 racks Churns, 2 dozen Axes, 11 packages Agricultural Implements, 20 dozen Axes, 17 packages Hardware, 18 dozen Parers, 68 dozen Tool-Handles, 1 cask Pumps, 19 dozen Wrenches, 2 dozen Braces.

By Welsh & Lea.—15 cases Axes, 1 cask Pumps, 4 cases Iron Bolts, 11 bundles Hardware, 1 barrel Hardware.

By Goulds Mfg. Co.—76 Pumps. By Edvard Miller & Co.—25 packages Lamp Goods.

By Dunbar, Hobart & Co.—5880 pounds Nails. By H. W. Peabody & Co.—16 packages Blacking, 5 packages Agricultural Implements, 11 cases Lamp-Ware, 6 Lawn Mowers, 600 pounds Nails, 13 cases Hardware, 2 packages Pumps, 2 cases Trucks, 4 barrels Lamp-Ware.

### FOR LITTLETON.

By A. S. Lascelles & Co.—1 dozen Razors.

By R. W. Forbes & Son.—48 packages Hardware, 3 packages Meat-Choppers, 24 dozen Shovel-Handles, 52 dozen Hay-Fork Handles, 1 case Molasses-Gates, 1 case Lamp-Ware, 6 dozen Brushes, 3020 pounds Carriage-Bolts, 1 dozen Store Trucks, 6 dozen Hog-Ringers, 1 case Sash-Cord, 1  $\frac{1}{2}$  gross Pencils, 1 case Pumps, 12 dozen Wash-Boards, 3  $\frac{1}{2}$  dozen Wringers, 1 package Thread-Wire, 60 packages Stoves, 2 packages Stamped-Ware, 3000 pounds Horse-Nails, 16 dozen Axes, 12 Hatchets, 4 cases Harness, 20 dozen Whips.

By A. Field & Co.—60 dozen Handles.

By F. B. Wheeler.—1 package Hardware, 14 dozen Forks, 9 dozen Hoes, 15 dozen Rakes, 1 case Wagons, 30 dozen Wash-Boards, 1 dozen Hardware, 5 dozen Spades.

By R. W. Cameron & Co.—370 packages Agricultural Implements, 6300 pounds Nails, 1 case Hardware, 1 case Axes, 1 case Axes, 1 case Hammers.

By Coombs, Crosby & Eddy.—17 Pumps, 6 dozen Spade-Handles, 84 Blocks, 210 Shears, 1 case Hardware.

By Arkell & Douglas.—25,760 pounds Barb-Wire, 19 cases Edge-Tools, 24 crates Stoves, 12 cases Trucks, 22 cases Handles, 11 cases Bolts, 7 crates Churns, 27 cases Hardware, 1500 pounds Nails.

By H. W. Peabody & Co.—45 packages Reaper Machinery, 1 case Reaper Machinery, 24 cases Hardware, 1 case Stamped-Ware, 11 cases Guns, 5 cases Agricultural Implements, 3000 Tags, 3 packages Lamp-Ware, 1 case Plated-Ware, 12 dozen Pencils, 40 dozen Handles, 10 cases Edge-Tools, 7 cases Lamp-Ware, 5 packages Carriage-Ware, 72 dozen Handles, 12 Car-Wheels, 2 cases Hardware, 16 packages Hardware, 5 packages Lamp-Ware, 1  $\frac{1}{2}$  dozen Wringers, 1 case Stoves, 1 case Blacking, 1 set Axes, 1 ton Wire, 3 cases Hardware, 16 bundles Wash-Boards, 1 bundle Sash-Cord, 1 case Fish-Lines, 64 dozen Handles, 1800 pounds Nails, 2 casks Pumps, 1 case Agricultural Implements, 8 cases Castings, 23 cases Hardware, 4 cases Agricultural Implements, 1 case Cord, 3 dozen Churns, 73 dozen Handles, 23 packages Carriage-Ware, 39 packages Carriage-Ware, 1 case Bolts, 5 cases Edge-Tools, 4 packages Lamp-Ware, 1 case Hardware, 1 package Traps, 12 Car-Wheels, 120 dozen Lines, 2 cases Shovels.

### FOR TAMANGA.

By A. S. Lascelles & Co.—1 case Agricultural Implements, 1 case Stencils, 2 cases Hardware, 6 bundles Agricultural Implements, 5 packages Lamp-Ware, 2 bundles Agricultural Implements,  $\frac{1}{2}$  dozen Churns, 1 case Snaths,  $\frac{1}{2}$  gross Axle-Grease.

PER BARK CONCORDIA, SEPTEMBER 3, 1889, FOR DUNEDIN, NEW ZEALAND.

By Russell & Erwin Mfg. Company.—2 cases Hardware.

By Dunbar, Hobart & Co.—15 pounds Shoe-Awls, 9520 pounds Nails.

By Coombs, Crosby & Eddy.—2 sets Axes.

By F. B. Wheeler & Co.—1 case Hardware, 11 sets Harness, 2 cases Hardware, 1 gross Curry-Combs, 1 case Harness.

By R. W. Forbes & Son.—2 packages Toys, 4 packages Hardware, 6 packages Lawn-Mowers, 7 dozen Axes.

By R. W. Cameron & Co.—2 boxes Wringers.

By W. H. Crossman & Bro.—1 dozen Wire-Mats,  $\frac{1}{2}$  dozen Mangles, 1 dozen Wringers, 5 cases Hardware.

By A. Field & Co.—21 Presses, 8 dozen Parers, 11 Casters, 2 dozen Cages, 12 Churns, 8 Toy Banks.

By A. S. Lascelles & Co.—1 gross Razor-Strops.

By W. K. Freeman.—1 case Trucks, 19 cases Hardware, 301 pounds Saws, 4 cases Scales, 2470 pounds Horse Nails.

By Maillet & Queveau.—25 dozen Axes, 11,250 pounds Barb-Wire.

By Arkell & Douglas.—1 case Harness, 8 bundles Blacking, 1 case Hammers, 6 cases Axes, 3 cases Hardware, 1 case Sand-Paper, 2 cases Hardware, 2 boxes Axes, 15 barrels Lamp Goods, 14 Stoves and Parts, 28 cases Edge Tools, 5 cases Handles, 16 cases Hardware, 2 cases Carriage-Ware, 1 case Hardware.

By Strong & Trowbridge.—5 cases Wringers, 4 cases Bolts, 1 case Broilers, 1 case Glue, 3 cases Hammers, 1 case Drawing-Knives, 12 cases Handles, 60 bundles Wash-Boards, 4 cases Hatchets, 2 cases Forges, 6 cases Lanterns, 4 crates Stoves, 1 crate Knife-Trays, 16 packages Stoves, 11 Stoves, 1 case Suction Pumps, 1 case Mangles, 4 cases Lamp-Ware, 1 barrel Lamp-Ware, 1 case Wagon-Jacks, 5 packages Churns, 1 case Chisel-Handles, 3 cases Bench-Screws, 10 cases Hardware, 2 cases Rifles, 2 packages Hardware, 1 bundle Scoops, 2 packages Blocks, 1 case Lemon-Squeezers, 2 cases Japanned Handles, 5 cases School-Slates, 4 cases Nails, 7 cases Meat-Choppers, 3 cases Money-Banks, 1 case Wringers, 12 packages Stoves, 1 case Mangles, 3 crates Stoves, 2 packages Lamp-Ware, 4 cases Hardware.

By H. W. Peabody & Co.—16 packages Hardware, 2 cases Bolts, 336 pounds Nails, 2 cases Agricultural Implements, 8 package Carriages, 12 dozen Handles, 22,400 pound Barb-Wire, 8 crates Stoves, 1 case Agricultural Implements, 15 dozen Handles, 12 bundles Wash-Boards, 22 cases Hardware, 11,200 pounds Barb-Wire, 6 cases Fire-Arms, 12 cases Hardware, 1 barrel Lamp-Ware, 250 Handles, 14 cases Wringers, 1 case Mangles, 3 cases Bolts, 44,800 pounds Barb-Wire, 49 packages Hardware, 1100 pounds Nails, 2 cases Drilling-Machinery, 1 case Axes, 66 dozen Handles, 9 cases Lamp-Ware, 1 barrel Blocks, 11 dozen Handles, 8 cases Hardware, 7 packages Lamp-Ware, 3 dozen Handles, 4 cases Bolts, 10 dozen Handles.

By Chas. Brewer & Co.—3 cases Hardware, 2 cases Agricultural Implements, 1 hoghead Pumps, 10 racks Churns, 3 cases Agricultural Implements, 17 cases Horse-Nails, 2 cases Hardware, 1 case Flint Paper, 6 packages Lamp-Ware, 1 case Sash-Cord, 1 case Oil-Cans, 1 case Hardware, 14 packages Hardware, 1 case Tacks, 5 cases Tools, 2 cases Hardware, 2 cases Agricultural Implements, 1 case Hardware, 6 cases Hardware, 7 cases Horse-Nails, 1 case Trucks, 5 racks Churns, 41 bundles Wash-Boards, 42 cases Handles, 48 bundles Wash-Boards, 1 case Tools, 2 cases Hardware, 7 cases Horse-Nails, 2 cases Hay-Rakes, 1 case Hardware, 2 cases Tools, 4 cases Wringers and Handles, 11 cases Handles, 1 case Brass Nails, 1 case Hardware, 1 case Whip-Sockets, 5 cases Hardware, 2 cases Axle-Grease, 1 case Traps, 1 case Hardware, 1 case Mangles, 1 case Hardware, 13 packages Stoves.

PER BRIG ESTELLA, SEPTEMBER 11, 1889, FOR PORT ELIZABETH, SOUTH AFRICA.

By Arkell & Douglas.—2 boxes Fuse, 7200 feet Wire, 10 dozen Wagons, 3 Wheelbarrows, 5 cases Fruit-Jars, 29 packages Carriage-Ware, 2 dozen Plows, 12 dozen Tools, 10 dozen Picks, 3250 pounds Sash-Weights, 30 dozen Hatchets, 1 bundle Sash-Cord, 13 dozen Wash-Boards, 39 dozen Axes and Hatchets, 40 dozen Handles, 4800 pounds Nails, 26 dozen Hatchets, 7 dozen Hammers, 14 dozen Hardware, 1 dozen Scales, 9 dozen Saws, 6 dozen Hammers, 8 Carts, 43 crates Wagon Parts, 9 dozen Hardware, 10,000 pounds Wire, 5 dozen Shovels, 89 dozen Axes and Hatchets, 16 dozen Picks, 55 Plows, 56 Plows, 3 dozen Hardware, 10,200 pounds Nails, 10 gross Blacking, 2 packages Stump-Pullers, 8 dozen Hardware, 700,000 Tacks, 1 gross Hardware, 3 cases Fruit-Jars, 4 dozen Tools, 3 Corn-Mills, 8 dozen Axes, 4 Stoves, 13,000 Metallic Cartridges, 1 case Hardware, 5 dozen Forges, 7 dozen Hardware, 1 dozen Shellars, 1 case Agricultural Implements, 24 Plows, 24 Plows, 60 pounds Sash-Cord, 3000 pounds Sash-Weights, 1 dozen Bird-Cages, 1 dozen Hammocks, 4  $\frac{1}{2}$  dozen Hardware, 4 Lawn-Mowers, 5 dozen Sash-Cord, 2 dozen Horse-Collars, 290 Plows, 15 Hand-Carts, 40 Plows, 144 dozen Handles, 15 Platform Trucks, 2  $\frac{1}{2}$  dozen Harness, &c.; 1  $\frac{1}{2}$  dozen Harness.

A prominent feature in the next report of the Bureau of Labor and Industrial Statistics of Maine will be a careful and exhaustive exhibit of the mining and quarrying interests, especially those of granite, lime and slate. Four quarries are in operation in the town of Monson, and one each in the towns of Blanchard and Brownville. Some 200 men, with a monthly pay-roll of \$10,000, are employed in Monson; 16 at the quarry in Blanchard and some 60 in Brownville.

## REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

### Paints and Colors.

Business in most branches of the market has been rather slow, unfavorable weather having interfered with out-door work at this and neighboring points, thus curtailing the consumption to greater or less extent. The distribution of the more staple commodities is, however, represented as having been as good as could be expected under the circumstances, and the market, in a general way, may be said to retain remarkable steadiness. The Southern demand has again been a noticeable feature, and, in contrast with that from nearly all other points, shows quite a fair degree of spirit.

The National Lead Trust have secured two Pittsburgh establishments for which negotiations have been pending a long time, and the trust now control nearly every corroding establishment of importance in the country.

**White Lead.**—The movement of White Lead has been rather slow during the week, chiefly because of unfavorable weather influences. Corroders look for a brisker movement as soon as conditions are more favorable for out-door work, and meanwhile firmly adhere to old prices and terms. Jobbers, it is said, have been giving customers the full benefit of discounts and rebates as a leader to orders for articles. Net prices as low as 6½¢ on moderate-sized lots and 6.07½¢ where orders for a general assortment of goods made a good-sized bill have been accepted. This waiving of profits by jobbers has been productive of rumors of a "cut," but, as the facts above stated show, it has been merely a case of retailers securing Lead at first cost. The "trust" have made no change in prices or rebates and are unlikely to during the balance of the year, although somewhat annoyed that the prescribed regulations are departed from by jobbers. The few "independent" concerns adhere to the official figures.

**Red Lead and Litharge.**—In these articles there has been merely a fair amount of business. Former prices and terms prevail, and the market is devoid of interesting feature.

**Zincs.**—The current production of American Oxide is taken up very closely by deliveries making on contracts, and this condition of affairs, to all accounts, will likely continue during the balance of the year. What new business does go through is at old prices. Foreign Zincs are very firmly held, but the demand at present is rather slow.

**Colors.**—Dry Colors have met with very fair sale, considering the adverse weather influences. Buyers' operations, however, have been gauged almost wholly by imperative wants, and it is only in the instance of certain lines of Grinders' Colors that purchases for forward shipment are making. Prices remain practically the same as quoted for some time past, and the market, as a whole, appears to be quite steady.

### Animal and Vegetable Oils.

Two facts have been brought prominently to the surface the past week. One is that the market for Cotton-Seed-Oils is unmistakably demoralized. The other is that, instead of becoming cheaper, Linseed-Oil will remain at present prices for

the time being and probably go higher in the future. The Cotton-Seed-Oil depression is due to a contest between trust and anti-trust producers. The strength of the market for Linseed-Oil is due to the fact that the home seed crop is turning out much smaller than had been anticipated. In other branches of the Oil trade there have been no striking features. Prices have undergone but little change and the general surroundings are nearly the same as a week ago.

**Linseed-Oil.**—Prices are very firmly held. City crushers have made no change in their figures, but high cost and moderate offerings of Western Flaxseed have served to restrict out-of-town production, and 58¢ is now the very lowest price at which raw Oil of any make can be secured. The demand is remarkably steady, despite the rather high prices ruling and in the face of alleged increased use of substitutes and adulterants.

**Cotton-Seed-Oils.**—The market is very unsettled and prices are very difficult to quote with any degree of accuracy. Offers of Summer Yellow in the foreign markets are said to be making at prices equivalent to only 35¢ here. Large home consumers are said to be offered supplies at 38¢ and for small lots 40¢ @ 42¢ are the best figures. Some large contracts are believed to have been made, but particulars are not divulged.

**Lard-Oil.**—In the absence of any radical change in the price of raw material the market for Oil has remained practically stationary. The demand is running light, the production is moderate and pressers' prices are the same as quoted a week ago.

**Sperm and Whale Oils.**—A lot of 250 barrels crude Sperm was sold at 61¢ in New Bedford, and would indicate a firm market. New business in crude Whale is reported. Manufactured products have been selling to a very fair extent and at steady prices.

**Menhaden-Oil.**—The movement of crude has been moderate. Buyers and sellers seem inclined to move cautiously pending further fishing operations. From the sellers' point of view, the recent conditions favor a firm market. Pressed and Bleached Menhaden and Tanners' Oils are unchanged.

**Cocoonut-Oil.**—Ceylon is rather firmer, with small sales reported at 5½¢ on the spot, against 5½¢ accepted a few days ago. There is scarcely any Cochin Oil here.

**Olive-Oil.**—Italian in barrels has been sold at up to 73¢, but subsequently weakened off to 72¢ ex-store.

**Palm-Oil.**—Is very firm. There is little, if any, stock in first hands here, and Boston holders offer sparingly.

**Tallow-Oil.**—Advanced to 50¢ for Double-Pressed City.

## Wholesale Prices.

NEW YORK, September 17, 1889.

### Animal and Vegetable Oils.

Linseed, City, raw.....per gal	60	@	..
" " " " " " " "	63	@	..
" " " " " " " "	61	@	58
Lard, City, Extra Winter.....	54	@	55
" " " " " " " "	52	@	58
" " " " " " " "	47	@	48
" " " " " " " "	42	@	44
" " " " " " " "	31	@	53
Cotton-seed, Crude, prime.....	33	@	33
" " " " " " " "	30	@	32
" " " " " " " "	40	@	39
" " " " " " " "	38	@	39
Sperm, Crude.....	61	@	62
" " " " " " " "	67	@	68
" " " " " " " "	72	@	73
" " " " " " " "	74	@	75
" " " " " " " "	80	@	..
Whale, Crude.....	39	@	40
" " " " " " " "	45	@	46
" " " " " " " "	47	@	48
" " " " " " " "	49	@	50
Sea Elephant, Bleached Winter.....	44	@	55
Menhaden, Crude, Southern.....	21	@	23
" " " " " " " "	28	@	29
" " " " " " " "	34	@	35
" " " " " " " "	38	@	39
Tallow, City, prime.....	50	@	50
" " " " " " " "	47	@	47
Cocoonut, Ceylon.....	5½	@	5½
" " " " " " " "	7½	@	7½

Cod, Domestic.....	31	@	32
" " " " " " " "	34	@	35
Red Elaine.....	36	@	38
Red Saponified.....	4½	@	4½
Bank.....	25	@	26
Straits.....	27	@	28
Olive, Italian, bbls.....	72	@	73
Neatsfoot, prime.....	63½	@	64
Palm, prime, Lagos.....	5½	@	5½

### Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test, per gal	8	@	9
" " " " " " " "	8½	@	9½
" " " " " " " "	6	@	7
Cylinder, light, filtered.....	15	@	20
" " " " " " " "	14	@	20
" " " " " " " "	10	@	18
Paraffine, 23½ @ 24 gravity.....	11	@	12
" " " " " " " "	10	@	11
" " " " " " " "	8½	@	9
" " " " " " " "	14	@	14½
" " " " " " " "	12	@	13

### Paints and Colors.

Barytes, Prime White.....	7 ton, \$21.00	@	21.50
" " " " " " " "	18.00	@	20.00
" " " " " " " "	16.00	@	17.00
" " " " " " " "	14.00	@	15.00
" " " " " " " "	12.00	@	..
Blue, Celestial.....	5½	@	7½
" " " " " " " "	45	@	50
" " " " " " " "	20	@	35
" " " " " " " "	7	@	25
Brown, Spanish.....	¾	@	1
" " " " " " " "	8	@	8
Black, American Drop.....	8	@	10
" " " " " " " "	12	@	14
" " " " " " " "	5	@	18
Black, Lamp, common.....	12	@	18
" " " " " " " "	19	@	25
" " " " " " " "	27	@	33
Carmine, No. 40, in bulk.....	3.10	@	..
" " " " " " " "	3.20	@	..
" " " " " " " "	4.20	@	..
Chalk, in bulk.....	1½	@	2.00
" " " " " " " "	30	@	40
China, Clay, English.....	13.50	@	18
" " " " " " " "	10.00	@	11.50
Cobalt Oxide, prep'd.....	2.90	@	..
" " " " " " " "	2.60	@	..
" " " " " " " "	2.65	@	..
Crocus Martius, English.....	1½	@	2½
" " " " " " " "	1½	@	2½
Green, Paris, in bulk.....	20	@	..
" " " " " " " "	20½	@	..
" " " " " " " "	22	@	20½
" " " " " " " "	8	@	11
" " " " " " " "	12	@	13
" " " " " " " "	22	@	25

REBATES, &c.—Paris Green.—Rebates to buyers of 500 to 1000 lb during season, ½¢ @ 1¢; to buyers of 1000 to 2000 lb, 1¢; to buyers of 2000 to 4000 lb, 1½¢; to buyers of 4000 to 10,000 lb, 2¢; to buyers of 10,000 lb and over 2½¢. Buyers of 5 tons or over at one time receive an additional ¼¢ @ ½¢.

Lead, American White, dry..... 6½ | @ | 7 |

" " " " " " " "..... 6½ | @ | 7½ |

" " " " " " " "..... 6½ | @ | 7 |

Litharge, in barrels..... 6½ | @ | .. |

" " " " " " " "..... 7 | @ | .. |

" " " " " " " "..... 7½ | @ | .. |

REBATES, &c.—White Lead.—Rebate on purchases of 500 lb and over, if paid for within 60 days of date of invoice; terms 60 days or a discount of 2½¢ if payment within 15 days from date of invoice. Extra rebate of ½¢ @ 1¢, payable July 1 and December 31 to buyers of a total of 10 tons pure Lead during the year.

Litharge.—Rebate of ¼¢ @ ½¢ for cash in 60 days and 2½¢ additional for cash in 15 days.

Ocher, Rochelle..... 1.35 | @ | 1½ |

 " " " " " " " " | 1½ | @ | 2½ || " " " " " " " " | 1½ | @ | 3 |
" " " " " " " "	1½	@	1½
Orange Mineral, English.....	8½	@	9½
" " " " " " " "	9	@	9½
" " " " " " " "	8½	@	9½
" " " " " " " "	8	@	8½
Paris White, English Chloride.....	90	@	1.10
" " " " " " " "	70	@	80
Red, Indian, English.....	5½	@	7
" " " " " " " "	2	@	6
" " " " " " " "	9	@	14
" " " " " " " "	9	@	11
" " " " " " " "	90	@	1.25
" " " " " " " "	1.00	@	1.25
" " " " " " " "	1.00	@	1.45
Sienna, Italian, Burnt and Powd. # 1	5	@	6½
" " " " " " " "	1½	@	3½
" " " " " " " "	5	@	6
" " " " " " " "	2	@	3½
" " " " " " " "	1½	@	18
" " " " " " " "	1½	@	18
Talc, French.....	1½	@	1½
" " " " " " " "	1	@	1½
Terra Alba, French.....per 100 lb	72½	@	80
" " " " " " " "	9	@	85
" " " " " " " "	70	@	75
" " " " " " " "	38	@	40
Umber, Turkey, Bnt. and Powd. # 1	3½	@	4
" " " " " " " "	2½	@	3
" " " " " " " "	3	@	3½
" " " " " " " "	2½	@	3½
" " " " " " " "	1½	@	1½
" " " " " " " "	1½	@	1½
Yellow, Chrome.....	10	@	25
Vermilion, American, Lead.....	11½	@	13
" " " " " " " "	63	@	70
" " " " " " " "	82	@	85
" " " " " " " "	8	@	25
" " " " " " " "	75	@	77
" " " " " " " "	88	@	90
Whiting, Common.....	40	@	45
" " " " " " " "	55	@	65
Zinc, American, dry.....	4½	@	4½
" " " " " " " "	..	@	7½
" " " " " " " "	6	@	7½
" " " " " " " "	..	@	7½
" " " " " " " "	..	@	7½
" " " " " " " "	..	@	6
" " " " " " " "	10	@	10½
" " " " " " " "	10½	@	10½
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over.....	9½	@	9½
" " " " " " " "	9½	@	10
Discounts.—French Zinc.—Discounts to buyers of 10-bbl. lots of one or assorted grades, 1¢; 25 bbls, 2¢; 50 bbls, 4¢. No discount allowed on less than bbl. lots.			

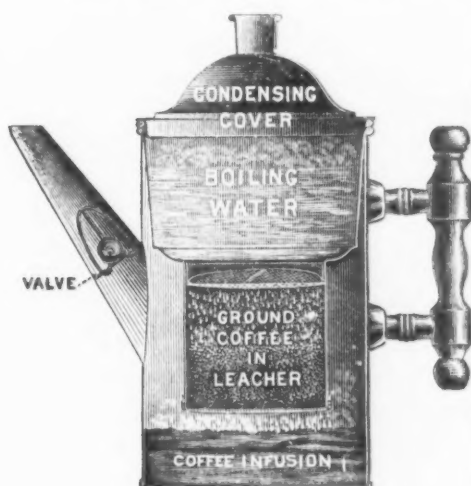
### Colors in Oil.

Blue, Chinese.....	35	@	40
" " " " " " " "	20	@	45
" " " " " " " "	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
" " " " " " " "	16	@	18½
Sienna, Raw.....	7	@	13
" " " " " " " "	7	@	13
Umber, Raw.....	14	@	18
" " " " " " " "	7	@	10



### The Star Coffee-Pot.

The utensil above named and illustrated in the accompanying cut is manufactured by Silver & Co., 56 Warren street, New York. It will be observed that the filtering compartment consists of the leacher in which the ground coffee is placed, the upper portion of the arrangement containing the boiling water, which reaches the coffee through an independent strainer with handle attached. In operation this water forces itself through the coffee-grounds and also through the filter fabric or bottom of the leacher, thus escaping into the pot. The manufacturers call attention to the point that no matter how coarse, fine or powdered the coffee may be the filter fabric will filter the coffee at a uniform rate, extracting all the strength and aroma of the berry and making the coffee bright and clear without the presence of an egg or other foreign matter. The filter is removable and may be readily taken out when desired. The cover of the pot in connection with the ball-valve in the spout is said to prevent the escape of any



The Star Coffee-Pot.

of the aroma or strength of the coffee from the pot. The point is emphasized that this pot answers equally well for the boiling and filtering processes. The grounds may be removed when the beverage has been made. The economy in the use of this article, as well as its simplicity in construction and use, are alluded to. The coffee-pot is substantially made and with ordinary treatment is not liable to get out of order. The quality of the coffee made in it is especially emphasized.

### The Jersey Corn-Husking Pin.

Tomlinson & Satterthwaite, Trenton, N. J., are putting on the market a new corn-husking pin, which they call the



The Jersey Husking-Pin.

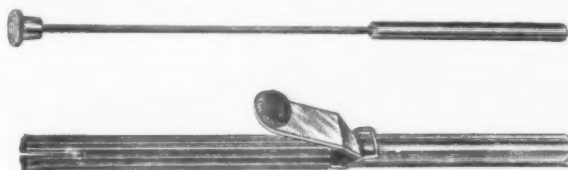
Jersey. It is illustrated in the engraving herewith given, which indicates the appearance and special features of the pin. It will be observed that the straps of this pin are readily adjusted by means of the buckle shown so as to fit any hand with or without glove. The superiority of this adjustment is alluded to.

Mr. Gladstone, of England, believes that the last 50 years have been the grandest in the history of the world, and that the

next 50 years will be an era of reconstruction. Perhaps there will be more of electric energy.

### The Modjeska Curling-Iron.

Miller & Steffen, 512 Flournay street, Chicago, are putting on the market a new curling-iron, which is illustrated in the accompanying cuts. The features of this iron are: A hollow metal mandrel, attached to a hollow corrugated metal handle, and a separable heating core,

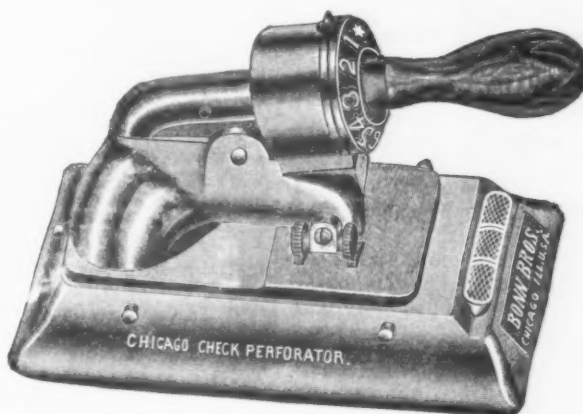


The Modjeska Curling-Iron.

which is inserted through the handle and is retained in place by friction. These parts are shown separately in the cuts. Heat is transmitted to the device through the poker-shaped core, which is first detached from the iron, and can then be heated to any desired degree in a fire, lamp or gas-jet. By this method the curling-surface cannot become rough, soiled or smutted, insuring always a clean, smooth surface for curling hair. The manufacturers claim as a special point of superiority that the Modjeska has no wooden parts to char, burn or crack off. It is nickel-plated and presents a very neat appearance. The firm above named will quote prices on stated quantities, or will entertain propositions to manufacture and handle; or will negotiate for the absolute sale of all rights to responsible parties.

### Chicago Check-Perforator.

The accompanying engraving represents a check-perforator that is supplied by Bonn Brothers, 128 La Salle street, Chicago, for which many strong claims are made. It weighs only 5 pounds and works quickly and well. It is simple in construction and is very easily operated. It is finished in nickel-plate and is a handsome addition to any cashier's desk. The following transcript of directions for use will be understood by reference to the engraving: To insert check press down small flat bar (feed-presser) above the name-plate; when your check is in position let



The Chicago Check-Perforator.

go feed-presser, take dial handle in palm of right hand, turn it until you have the figure you desire to perforate immediately under the index (which will be found above the dial), then bring your handle down as far as it will go, allow it to turn to its former position (do not turn before), when it will be ready for the next figure.

To withdraw check, depress the feed-presser. To withdraw the waste, press back the small round slide beneath the machine. No oiling is necessary to keep the machine in good order.

### The Mild Purifying Cup.

H. H. Hodell & Co., Cleveland, Ohio, are manufacturing the article shown herewith, which they term the Mild Purifying Cup. This cup can be attached to any chain-pump, is simple in construction and

is not likely to get out of order. The cup, as its name implies, is designed for purifying the water in any well or cistern, and the manufacturers state that this is done by oxygenation, sufficient air and oxygen



The Mild Purifying Cup.

being carried through the water to purify it. It is also claimed that the cups expel water-lice, wiggles, water-bugs and other impurities. In attaching the cups or buckets to the chain they are inserted at

equal distances apart and are described as working quite as well as the ordinary buckets. The manufacturers state that these cups will not freeze in winter, and as the links are galvanized they never corrode or rust. Their durability and the low price at which they are sold are also referred to.

**Hubbard's Patent Buckle-Guard.**

This article is made by W. & E. T. Fitch, New Haven, Conn. It is represented in Fig. 1 and the manner in which it is used is shown in Fig. 2. Its object



Fig. 1.—Hubbard's Patent Buckle-Guard.

is to prevent the tail of the horse from catching in the harness, more particularly in the buckles on the hip and crupper straps. Most of the devices which have been put on the market for this purpose have been in the form of a shield, either of leather or metal, which covers the



Fig. 2.—Method of Using Buckle-Guard.

buckle and presents to the eye a more or less clumsy appearance. The Hubbard guard, herewith illustrated, is, however, as may be seen, exceedingly simple. It will be observed that it is easily attached, while at the same time it accomplishes the purpose for which it is intended without covering the buckle, which is referred to as a special advantage, both in the adjustment of the straps and the appearance of the harness. Its inexpensiveness is also referred to. The guard may be obtained through dealers in saddlery goods.

The exposition buildings at St. Joseph, Mo., were damaged by fire to the extent of \$50,000, and the cylindrical steel car manufactured by the Steel Car Company,

of St. Joseph, at a cost of \$40,000, was destroyed. The total loss is difficult to estimate on account of the varied nature of the exhibits, but the figure is placed at \$300,000.

**A Set of Machinists' Tools.**

The accompanying illustration represents a case of tools put on the market by Wells Bros. & Co., Greenfield, Mass. It



Set of Taps, &c.

includes a full set of machinists' hand taps with tap-wrench to fit the same. The company are making these cases to fit four sizes of wrenches, with a full set of taper, plug and bottoming taps in different sizes, as follows: Size 0 holds  $\frac{1}{16}$  to  $\frac{1}{4}$ ; size 5 holds  $\frac{3}{16}$  to  $\frac{1}{2}$ ; size 6 holds  $\frac{1}{4}$  to  $\frac{3}{4}$ ; size 7 holds  $\frac{1}{2}$  to 1 inch. This case is referred to

**The Gilchrist Lightning Cork-Puller.**

The Gilchrist Mfg. Company, 20 and 22 Michigan avenue, Chicago, Ill., are manufacturing the cork-puller illustrated herewith. In use the neck of the bottle is pressed firmly into the mouth of the puller. When the handle shown is pulled down the teeth in the arm work in teeth in the upright rod, causing it to revolve and



The Gilchrist Lightning Cork-Puller.

as making a most convenient article for users and a very attractive sample-case for the trade.

Negotiations for the settlement of the strike at the works of the Columbia Iron Company, at Lancaster, Pa., have been declared off, the company refusing to discharge the non-union men now in their employ.

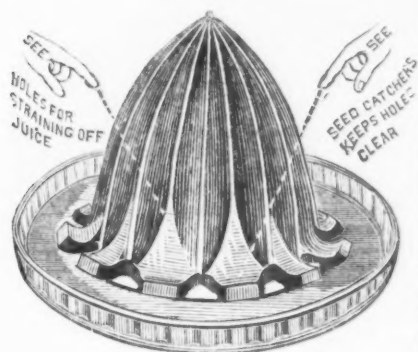
is the only power cork-puller using a wire corkscrew, and that the cork is not mutilated by the operation, thus preventing the falling of fragments into the liquid contents of the bottle. The rapidity with which it may be used is also pointed out. The metal parts of the puller are handsomely nickel-plated. The company desire us to state that they own the patent for Canada on this invention, which they



would be willing to dispose of, or they are open to arrangements for manufacturing in Canada on royalty.

#### Lemon-Reamer.

Silver & Co., 56 Warren street, New York, are putting on the market the lemon-juice extractor and strainer in a new form, shown in the accompanying illustration. The device, which is made entirely of glass, is fitted to a glass or other receptacle, the holes shown in the cut permitting the juice of the lemon to escape into the glass and at the same time exclud-

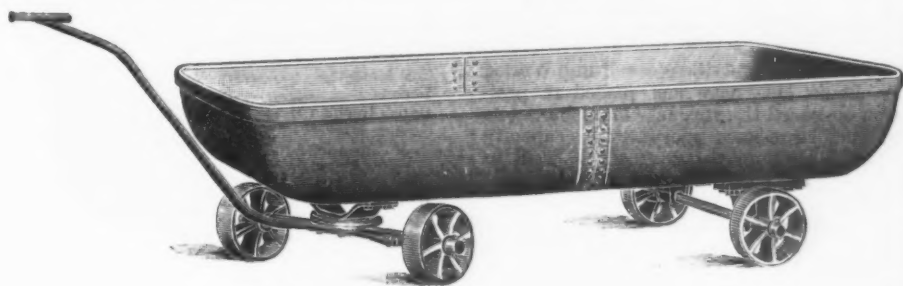


Lemon Reamer.

ing the pulp and seeds. The readiness with which this article does its work is referred to.

#### Steel-Bowl Dipping Tank.

The accompanying illustration represents a dipping-tank put on the market by the Kilbourne & Jacobs Mfg. Company, Columbus, Ohio. This tank is referred to as a great convenience in dipping castings or iron or wood parts of machinery. It can also be used for coal-tar, paint, &c., or as a portable mortar-box. The bowl is made of two pressed-steel sections riveted together in the middle, as shown in cut, and has a wrought-iron band  $1\frac{1}{2} \times \frac{1}{2}$  inch firmly riveted around the top. The size of the tank is 42 inches wide, 86 inches long and 14 inches deep. The handle or tongue is  $\frac{3}{4}$ -inch round iron. The wheels are 9 $\frac{3}{4}$  inches in diameter by



Steel-Bowl Dipping-Tank.

2 $\frac{3}{4}$ -inch face. The fifth wheel is heavy wrought-iron. The latter is thoroughly bolted together and painted black. Its weight is 600 pounds. Any special length tank made to order.

The ring which controls the beef business in the West explains the discrepancy between the high price of beef and the low price of cattle by the claim that the cost of meats to the consumer has decreased on all but the choice cuts, and these command big prices because the demand for that quality has increased. In other words, more people eat better meat and are willing to pay for it.

#### Kinney's Disinfecting Chamber-Pail.

Kinney's Patent Disinfecting Chamber-Pail, which is represented in the accompanying illustrations, Figs. 1 and 2, is



Fig. 1.—Kinney's Disinfecting Chamber-Pail, without Handle or Cover.

manufactured by the Buhl Stamping Company, Detroit, Mich. Fig. 1 shows the pail and wood rim without the adjustable



Fig. 2.—Pail Complete.

handle and box cover, while Fig. 2 represents the pail complete with handle and box cover in place. The disinfectant, which is referred to as removing all disagreeable odor, is contained in the cover, and may be deposited in the pail by the

ground that a former tenant of the property has claims prior to all others which must be respected.

#### Parker's Lightning Corn-Cutter.

The corn-cutter shown in the accompanying illustrations is put on the market by Hibbard, Spencer, Bartlett & Co., Chicago, Ill. Fig. 1 represents the cutter at-

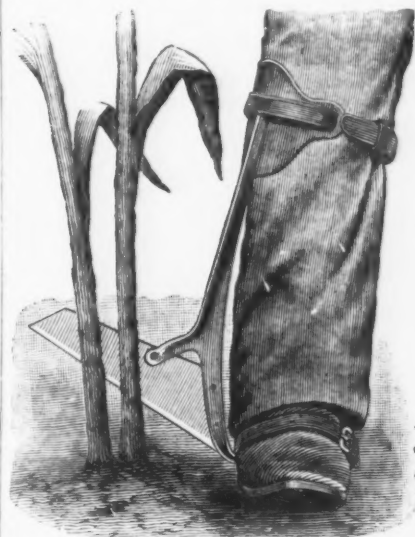


Fig. 1.—Parker's Lightning Corn-Cutter.

tached to the leg of user and Fig. 2 the cutter in operation. The device consists of a knife 9 inches long attached to a standard, secured to the foot and leg by the stirrup and two straps shown. Fig. 2 clearly indicates the utility of the cutter, as well the ease and rapidity with which it may be operated. The point is made that



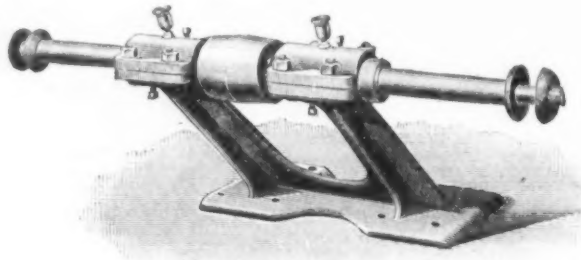
Fig. 2.—Corn-Cutter in Use.

its use is not as fatiguing as the common corn-knife, while it does away with a great deal of the stooping peculiar to the employment of the latter. The low price at which it is offered is also referred to. The cutter is said to be meeting with a large sale.

The Chinese inhabitants of Mott street in this city, have boycotted a new building erected by John P. White, on the

### Improved Buffing-Lathe.

In the accompanying illustration we show a general view of an improved buffing-lathe which is being offered the trade by the Pittsburgh Sheet Metal Tool Company, of Allegheny, Pa. This machine has been designed especially to meet the demand for a heavy and durable lathe, and is adapted for felt or muslin wheels such as are employed in brass and zinc work, &c. It is fitted with a steel spindle  $1\frac{1}{2}$  inches in diameter and 42 inches long, and has bearings which are unusually long for a machine of its class. The manufacturers direct special attention to the manner in which the wheel is held, the device consisting of a collar and nut chamfered off on the edge, which the soft wheel will overlap. This is considered a valuable



Improved Buffing-Lathe.

feature of the machine, as users of buffing-lathes will readily appreciate. The machine complete weighs about 125 pounds.

### The Sale of the Thomas Iron Company.

A good many rumors have been floating about concerning the sale of the Thomas Iron Company, of Hokendauqua. We understand that the situation is as follows: At the meeting of the company at first the holders of 12,000 shares voted against the sale, 10,000 for it, while the directors abstained from voting. Believing that the matter was settled a number of those opposed to the sale left. After luncheon, however, the subject was again taken up and the directors were authorized to sell. Those who were absent refuse to part with their stock except at an advance at the figure named. B. G. Clarke, president of the company, attributes this refusal to the effect which the reading of the directors' report had upon some of the stockholders, which in substance was the following, quoting Mr. Clarke's words: "While the competition from the South and the West was very great and the price realized during the past two years was not within \$1 to \$2 a ton of that of former years, still we made as much money as in any year since 1880."

The plant of the New Philadelphia Iron and Steel Company, New Philadelphia, Ohio, has not been in operation during the past ten days owing to a delay in getting castings for squeezer repairs which became necessary in consequence of a breakage.

The business of the Tamarack and Osceola Copper Company, at Dollar Bay, Mich., a Boston enterprise, is increasing rapidly. There are in the wire department 60 machines in operation, the men working 12½ hours a day. The new annealing-house has been completed and is now being equipped. Three new annealing-furnaces have been put in. These, with the two that will be removed from the old annealing-room, will be sufficient to meet for

some time demands made by the mill. The space now occupied by the annealing department is to be utilized by heavy wire-drawing machinery. One frame will contain 10 machines, and a second two extra-heavy machines for drawing the largest sizes of wire. The 60-horse-power dynamo for the electric welding plant is expected daily, and will be put in use as soon as possible after its arrival.

### The Ford & Moncur Stoves at Emma Furnace.

The two 22 x 65 foot Ford & Moncur hot-blast stoves erected in the spring at the Emma Furnace of the Union Rolling Mill Company, at Cleveland, Ohio, by Lean & Blair, Pittsburgh, have now been in operation for about ten weeks and

give good results. The furnace is 16 feet bosh by 75 feet high. The main blast-pressure has been 7 pounds and the average temperature of blast at the tuyeres 1400°, though 1500° and even more can easily be registered. With the temperature at 1400° and one stove blown continuously for two hours, the average decline in temperature has been 180°, and never more than 200°. These stoves are the first of the kind in this country and their work has naturally been watched with much interest by furnace men. Lean & Blair quote the following letter from General Manager Fuller, of the Union Rolling Mill Company, Cleveland:

"The Ford & Moncur hot-blast stoves erected for us by Lean & Blair the past season are working satisfactorily and proving all that was claimed for them. We shall be glad to have parties contemplating the introduction of fire-brick stoves call upon us and judge for themselves."

The Hooker-Colville Steam Pump Works, St. Louis, Mo., have just placed in position on board the steamer Gouldsboro one of their large-sized pumps, with a capacity of 20,000 gallons per hour, to be used in washing the river banks.

The magnitude of the trade in roofing-slate in the Pennsylvania regions is shown in some degree by the following extract from a recent issue of the *Pen Argyl Index*: "Five hundred and seven carloads of roofing-slate were shipped from the Hard Vein, Pen Argyl, Bangor and East Bangor slate sections over the Bangor and Portland Railway to points on the D. & L. & W., Pennsylvania and Lehigh Valley railroads during the month of August. The average value of a carload is \$225, and the total amount paid into the slate region for the month of August sums up to over \$114,000. Forty-two carloads, amounting to about \$10,000, were shipped from the Hard Vein region."

Under the auspices of the Verein Deutscher Eisengiessereivereine and the German Government a very extensive series of tests has been made in the use of ferro-silicon in foundry work. At the last

meeting of the German iron-founders at Frankfort Bergrath Jüngst, of Gleiwitz, made a verbal report.

The Etowah Iron Company have purchased the iron and manganese ore property of the Etowah Iron and Manganese Company, including 17,400 acres of land near Cartersville, Ga. The officers of the company are A. O. Granger, president; Jos. M. Gazzam, of Philadelphia, vice-president, and Thos. Parkes, general manager.

The Broderick & Bascom Rope Company, St. Louis, Mo., report an active business, so much so that they have been compelled to enlarge their plant, and in 90 days will have about trebled their present capacity.

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# CURRENT HARDWARE PRICES.

SEPTEMBER 18, 1889.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers' name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

## Ammunition.—

Cape, Percussion, & 1000—

Hicks & Goldmark's and Union Metallic Cartridge Co.	
F. L. Waterproof, 1-10's	34@35¢
E. B. Trimmed Edge, 1-10's	46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's	46@47¢
Musket Waterproof, 1-10's	50¢
G. D.	38¢
S. B. Genuine Imported	45¢
Eley's E. B.	54¢ @ 55¢
Eley's D Waterproof, Central Fire	\$1.60

## Cartridges.

Rim Fire Cartridges	50¢ & 52¢
Rim Fire Military	15¢ & 2¢
Cent. Fire, Pistol and Rifle	25¢ & 2¢
Cent. Fire, Military and Sporting	15¢ & 2¢
Blank Cartridges, except 22 and 32 cal., additional 10¢ on above discounts.	
Blank Cartridges, 22 cal.	\$1.75
Blank Cartridges, 32 cal.	\$3.50
Primed Shells and Bullets	15¢ & 2¢
B. B. Caps, Round Ball, 1-10's	2¢
B. B. Caps, Con. Ball, Swgd.	\$2.00

## Primers—

Berdan Primers, \$1.00	2¢
B. L. Caps (for Sturtevant Shells) \$1.00	2¢
All other Primers, \$1.20	2¢

## Shells—

First quality, 4, 8, 10 and 12 gauge	25¢ & 10¢ & 2¢
First quality, 14, 16 and 20 gauge (\$10 list)	30¢ & 10¢ & 2¢
Star, Club, Rival and Climax brands	20¢ & 10¢ & 2¢
Selbold's Comb. Shot Shells	15¢ & 2¢
Brass Shot Shells, 1st quality	60¢ & 2¢
Brass Shot Shells, Club, Rival, Climax	60¢ & 2¢
I X L, 10 and 12 gauge	40¢ & 2¢
"Special," 16 gauge	30¢ & 10¢ & 2¢
"Special," 10 and 12 gauge	40¢ & 10¢ & 2¢
Fowler's Pat.	\$3.25

## Shells Loaded—

Standard. List	40¢ & 10¢ & 40¢ & 10¢ & 10¢
Wads—	
U. M. C. & W. R. A.—B. E., 11 up	\$2.00
U. M. C. & W. R. A.—B. E., 9&10	2.30
U. M. C. & W. R. A.—B. E., 7&8	2.60
U. M. C. & W. R. A.—P. E., 11 up	3.10
U. M. C. & W. R. A.—P. E., 9&10	4.00
U. M. C. & W. R. A.—P. E., 7&8	4.90
Eley's B. E., 11 up	\$1.75
Eley's P. E., 11&20	2.80

## Anvils—

Eagle Anvils, 8 to 10¢	20¢ & 20¢ & 5¢
Peter Wright's	9¢ & 9¢ & 9¢
Armstrong's Mouse Hole	83¢
Armstrong's Mouse Hole, Extra 11½	11½¢
Trenton	9¢ & 9¢ & 9¢
Wilkinson's	9¢ & 9¢ & 9¢
J. & Riley Carr, Pat. Solid	11¢ & 11¢ & 9¢
Moore & Barnes Mfg. Co.	33¢ & 5¢

## Anvil Vise and Drill—

Millers Falls Co., \$18.00	20¢
Cheney Anvil and Vise	25¢
Allen Anvil and Vise, \$3.00	40¢ & 10¢

## Apple Parers—

Advance	¢ doz \$4.75
Antrim Combination	¢ doz 5.50
Baldwin	¢ doz 8.25
Champion	¢ doz 7.25
Daley	¢ doz 4.00
Eureka, 1888	each 17.00
Family Bay State	¢ doz 12.00
Favorite	¢ doz 5.00
Gem	¢ doz 5.25
Gold Medal	¢ doz 4.00
Ideal	¢ doz 4.00
Improved Bay State	¢ doz 30.00
Little Star	¢ doz 4.50
Monarch	¢ doz 13.50
New Lightning	¢ doz 5.50
Oriole	¢ doz 4.00
Penb	¢ doz 4.00
Perfection	¢ doz 4.00
Pomona	¢ doz 4.00
Rocking Table	¢ doz 6.00
Turntable	¢ doz 4.50
Victor	¢ doz 13.50
Waverly	¢ doz 4.00
White Mountain	¢ doz 4.25
72	¢ doz 5.75
76	¢ doz 6.50

## Augers and Bits—

Douglas Mfg. Co.	
Wm. A. Ives & Co.	70%
Humphreysville Mfg. Co.	
French, Swift & Co. (F. H. Beecher, Rockford Bit Company)	
Cook's, Douglas Mfg. Co.	55%
Cook's, N. H. Copper Co. 50¢ & 10¢ & 50¢ & 10¢ & 50¢	
Ives Circular Lip	60%
Patent Solid Head	30%
C. E. Jennings & Co., No. 16, extension	40%
C. E. Jennings & Co., No. 30	60%
C. E. Jennings & Co., Auger Bits, set	32½¢
32½¢ quarters, No. 5, No. 30, \$3.50, 20¢	
Lewis Patent Single Twist	45%
Russell "reunited" Augers and Bits	25%
Imitation Jennings' Bits	60¢ & 60¢ & 50¢
Pugh's Black	20%
Rockford, Jennings' Pattern	60%
Car Bits	50¢ & 10¢ & 60%
L Hommedieu Car Bits	15¢ & 10%
Forstner Pat. Auger Bits	10%

## Hollow Augers—

Ives	33½¢ @
French, Swift & Co.	33½¢ @ 10%
Douglas	40¢ & 10%
Bonney's Adjustable, ½ doz \$4.80	20¢ & 10%
Stearns	50¢ & 50%
Ives' Expansive, each \$4.50	20%
Universal Expansive, each \$4.50	20%
Wood's	25¢ & 25¢ & 10%
Cincinnati Adjustable	50¢ & 30¢ & 1%
Cincinnati Standard	25¢ & 10%

## Expansive Bits—

Clark's small, 18; large, 26	35¢ & 35¢ & 5%
Ives' No. 4, ½ doz \$60	40%
Swan's	40%
Stearns, No. 1, 26; No. 2, 22	35%
Stearns' No. 2, 24	20%

## Gimlet Bits—

Common	¢ gross \$2.75 @ \$3.25
Diamond	¢ doz \$1.10
Ree	25¢ & 25¢ & 5%
Double Cut, Shephardson's	45¢ & 45¢ & 10%
Double Cut, Ct. Valley Mfg. Co.	30¢ & 10%
Double Cut, Hartwell's, ½ gross	85¢ & 25
Double Cut, Douglas	40¢ & 10%
Double Cut, Ives	60¢ & 60¢ & 10%

## Bit Stock Drills—

Morse Twist Drills	50¢ & 10¢ & 5%
Standard	50¢ & 10¢ & 5%
Cleveland	50¢ & 10¢ & 5%
Syracuse, for metal	50¢ & 10%
Syracuse, for wood (wood list)	30¢ & 30¢ & 5%
Williams' or Holt's, for metal	50¢ & 10¢ & 10%
Williams' or Holt's, for wood	40¢ & 10%

## Ship Augers and Bits—

L'Hommedieu's	15¢ & 10¢ & 15¢ & 10¢ & 5%
Watrous	15¢ & 10¢ & 15¢ & 10¢ & 10%
Snell's	15¢ & 10¢ & 15¢ & 10¢ & 5%
Snell's Ship Auger Pat'n Car Bits	15¢ & 10¢ & 15¢ & 10¢ & 5%

## Awl Hafts—

Sewing, Brass Fer. ½ gr, \$3.50	45¢ & 10%
Pat. Sewing, Short \$1.00 ½ doz	40¢ & 10%
Pat. Sewing, Long	¢ doz \$1.20
Pat. Peg, Plain Top, ½ gr \$10.00	45¢ & 10%
Pat. Peg, Leather Top, ½ gr \$12.00	45¢ & 10%

## Awls, Brad Sets, &c—

Awls, Sewing, Common ½ gr \$1.70	35%
Awls, should. Peg. ½ gr \$2.40	40¢ & 40¢ & 10%
Awls, Pat. Peg. ½ gr 63¢	40¢ & 40¢ & 10%
Awls, Shouldered Brad, 2.70 ½ gr	35%
Awls, Handled Brad	\$7.50 ½ gr
Awls, Handled Scratch ½ gr	\$7.50 35%
Awls, Socket scratch. ½ doz, \$1.50	25¢ & 30%

## Awl and Tool Sets—

Alken's Sets, Awls and Tools	
No. 20, ½ doz \$10.00	55¢ & 10%
Tray's Adj. Tool Hds., Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$8	25¢ & 25¢ & 10%
Miller's Falls Adj. Tool Hds.	
Nos. 1, \$12; 2, \$18	25%
Henry's Combination Haft	¢ doz \$6.50
Brad Sets	
No. 42, \$10.50; No. 43, \$12.50	70¢ & 10¢ & 5%
Stanley's Excelsior	
No. 1, \$7.50; No. 2, \$4.00; No. 3, \$6.50	30¢ & 10%

## Axes—

### Makers' and Special Brands—

First quality	¢ doz \$6.00 @ \$6.50
Others	¢ doz \$5.50 @ \$5.75

## Axle Grease—

Fraser's	Keg ½ doz 4¢, Pall ½ doz 5¢
Fraser's, in boxes	¢ doz 8.50
Dixon's Everlasting	10¢ ½ doz 1¢
Dixon's Everlasting	\$1.50; 2 ½ doz 1.80
Lower grades, special brands	¢ gr \$5.50 @ \$7.00

## Axles—

No. 1	4¢ @ 4½¢, No. 2 5½¢ @ 5½¢
Nos. 7 to 14	55¢ & 5%
Nos. 15 to 18	47½¢
Nos. 19 to 22	70%
National Tubular Self-Oiling Standard Farm (1 to 5) and Special Farm (A1 to A5)	
Less than 10 sets	33½¢
Over 10 sets	33½¢ & 5%

## Bag Holders—

Sprengle's Pat.	¢ doz \$18
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## Balances—

Spring Balances	50%
Common 24 lb	¢ doz \$1.50
Chatillon's Spring Balances	50%
Chatillon's Circular Spring Balances	60%

## Bells—

### Hand—

Light Brass	70¢ & 10¢ @ 7½¢
Extra Heavy	60¢ & 10%
White Metal	60¢ & 10¢ & 10%
Silver Chime	33½¢ & 10%
Globe (Cone's Patent)	25¢ & 10¢ & 35%

### Door—

Gonz, Abbe's	33½¢ @ 10%
Gonz, Yankee	45¢ & 10%
Gong, Barton's	40¢ & 10¢ & 50%
Crank, Taylor's	25¢ & 10%
Crank, Brooks	50¢ & 10¢ & 25%
Crank, Cone's	10%

Crank, Connel's	20¢ & 10%
Lever, Sargent's	60¢ & 10%
Lever, Taylor's Bronzed or Plated	net
Lever, Taylor's Japanned	25¢ & 10%
Lever, E. F. M. Co's	50¢ & 10¢ & 2%
Pull, Brook's	50¢ & 10¢ & 2%
Pull, Western	25¢ & 10%

## Cow—

Common Wrought	60¢ & 10%
Western, Sargent's list	20¢ & 10%
Kentucky "Star"	70¢ & 10%
Kentucky, Sargent's list	70¢ & 10%
Dog, Genuine Kentucky	70¢ & 10%
Texas Star	50¢ & 10¢ & 50¢ & 10¢ & 5%
Call	40¢ & 10¢ & 5%
Farm Bells	½ doz 3¢ @ 3½¢
Steel Alloy Church and School Bells	40%

## Bellows—

Blacksmiths'	60¢ & 60¢ & 5%
Molders	40¢ & 40¢ & 10%
Hand Bellows	40¢ & 10¢ & 50%

## Belting, Rubber—

Common Standard	70¢ & 10%
Standard	70¢ & 10¢ & 5%
Extra	60¢ & 5¢ & 60¢ & 10%
N. Y. B. & P. Co., Carbon	60¢ & 10¢ & 5%
N. Y. B. & P. Co., Diamond	50¢ & 10%

## Bench Stops—

Morrill's	¢ doz \$9, 50%
Hotchkiss's	¢ doz \$5, 10¢ & 10%
Weston's, No. 1, \$10; No. 2, \$9.25	10¢ & 5%
McGill's	¢ doz \$3
Cincinnati	25¢ & 10%

## Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.	
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## Bit Holders—

Extension	
Barber's, ½ doz \$15.00	40¢ & 40¢ & 10%
Ives, ½ doz \$20.00	60¢ & 5¢ & 60¢ & 10%
Diagonal	¢ doz \$24.00, 40%
Angular	¢ doz \$24.00, 40%

## Blind Adjusters—

Domestic	¢ doz \$3.00, 33½¢
Excelsior	¢ doz \$10.00
Washburn's Self-Locking	20¢ & 20¢ & 10%

## Blind Fasteners—

Mackrell's, ½ doz \$1.00	20¢ & 20¢ & 10%
Van Sand's Self Pat., \$15 ½ gr	60¢ & 10%
Van Sand's Cl. Pat., \$15.00 ½ gr	55¢ & 10%
Washburn's Old Pattern, ½ gr	\$9.00
Merriman's	new list
Austin & Eddy No. 2008, ½ gr	\$9.00
Security Gravity, ½ gr	\$9.00

## Blind Staples—

Barbed, ½ in. and larger	¢ doz 7½¢ @ 8¢
Barbed, ¾ in.	¢ doz 8½¢ @ 9¢

## Blocks—

Ordinary Tackle, list May 20, 1889	50%
Cleveland Block Co., Mal. Iron	50%
Moore's Novelty, Mal. Iron	50%

## Bolts—

Door and Shutter—	
Cast Iron Barrel, Square, &c.	70¢ & 70¢ & 10%
Cast Iron Shutter Bolts	70¢ & 70¢ & 10%
Cast Iron Chain (Sargent's list)	65¢ & 10%
Ives' Patent Door Bolts	60%
Wrought Barrel	70¢ & 70¢ & 10%
Wrought Square	70¢ & 70¢ & 10%
Wrt Shutter, all Iron, Stanley's	60¢ & 10%
Wrt Shutter, Brass Knob	40¢ & 10%
Wrt Shutter, Sargent's list	60¢ & 10%
Wrt Sunk Flush, Sargent's list	55¢ & 10%
Wrt Sunk Flush, Stanley's list	50¢ & 10%
Wrt B.K. Flush, Con'n	55¢ & 10%

## Carriage, Machine, &c—

Com. list June 10, '84	75¢ & 7½¢ & 2%
Genuine Eagle, list Oct. '84	75¢ & 10¢ & 80%
Phila. pattern, list Oct. 7, '84	80¢ & 80¢ & 10%
R.B. & W., old list	70%
Machine, according to size	80¢ & 80¢ & 5%
Bolt Ends, according to size	80¢ & 80¢ & 5%

## Tire—

Common, list Feb. 28, '85	70%
Port Chester Bolt and Nut Company	
Empire, list Feb. 28, '85	70%
Phila., list Oct. '84	82½¢
Keystone, Philadel., list Oct. '84	80%
Norway, Phila., list Oct. '84	75¢ & 10%
American Screw Company	
Norway, Phila., list Oct. 16, '84	75¢ & 10%
Eagle, Phila., list Oct. 16, '84	80%
Philadel., list Oct. 16, '84	82½¢
Bay State, list Feb. 28, '85	70%
R.B. & W., Philadel., list Oct. 16, '84	82½¢

## Stove and Plow—

Store	65%
Plow	60¢ & 5%
R. B. & W., Plow	55%

**Cards—**

Horse & Curry.....10&10&10&10  
Cotton.....10&10&10  
Wool.....10&10&10

**Carpet Stretchers—**

Cast Steel, Polished.....\$ doz \$2.25  
Cast Iron, Steel Points.....\$ doz \$2.00  
Socket.....\$ doz \$1.75  
Bullard's.....25&25&10

**Carpet Sweepers—**

Bissell No. 5.....\$ doz \$17.00  
Bissell No. 7 New Drop Pan.....\$ doz \$19.00  
Bissell, Grand.....\$ doz \$36.00  
Grand Rapids.....\$ doz \$24.00  
Crown Jewel, No. 1, \$18.00; No. 2, \$19.00; No. 3, \$20.00  
Jewel.....\$ doz \$15.00  
Improved Parlor Queen.....\$ doz \$17.00

Nickel.....\$ doz \$27.00  
Japanned.....\$ doz \$24.00  
Excelsior.....\$ doz \$22.00  
Garland.....\$ doz \$18.00  
Parlor Queen.....\$ doz \$24.00  
Housewife's Delight.....\$ doz \$15.00  
Queen.....\$ doz \$16.00  
Queen, with band.....\$ doz \$18.00  
King.....\$ doz \$30.00  
Weed, Improved.....\$ doz \$16.00  
Hub.....\$ doz \$16.00  
Cog-Wheel.....\$ doz \$22.00  
Conqueror.....\$ doz \$22.00  
Easy.....\$ doz \$22.00  
Monarch.....\$ doz \$22.00  
Goshen.....\$ doz \$21.00  
Advance.....\$ doz \$18.00  
Ladies' Friend, No. 1, \$15.00; No. 2, \$16.00  
American.....\$ doz \$15.00  
Grand Republic.....\$ doz \$35.00

Cartridges—  
See Ammunition.

**Casters—**

Bed.....\$ Brass.....55&55&175  
Plate.....\$ Others.....60&60&10  
Shallow Socket.....40&10  
Deep Socket.....40&10  
Yale Casters, List May, 1884.....30&10&40  
Yale, Gem.....60&60&5  
Martin's Patent (Phoenix).....45&10&50  
Payson's Anti-friction.....60&60&10  
Giant Truck Casters.....30  
Stationary Truck Casters.....50&10  
Socket Truck Casters.....50

**Cattle Leaders—**

Humason, Beckley & Co.'s.....70  
Sargent's.....60&10  
Hotchkiss.....30  
Peck, Stow & W. Co.'s.....50&10

**Chain—**

Trace, 6 1/2-10-2, exact.....50&10&50&10&5  
Trace, 6 1/2-10-3, exact.....50&10&50&10&5  
Trace, 7-10-2, exact.....50&10&50&10&5  
Trace, 7-10-3, exact.....50&10&50&10&5  
NOR.—Traces, "Regular" sizes, 3/4 net  
Log, Fifth, Stretcher, and other fancy  
Chains, List Nov. 1, 1884  
American Coil, in cask lots,  
3-16 1/4 5-16 3/4 7-16 1/2 9-16 3/4  
\$8.25 5.75 6.00 4.00 3.75 3.60 3.50 3.40  
Less than cask lots, add 1/4¢ per lb.  
German Coil, list of June 20, 1887  
German Halter Chain, list of June 20,  
1887.....50&10&50&60  
Covert Traces.....30&25  
Oneida Halter Chain.....60&60&5  
Galvanized Pump Chain.....\$ 5 1/4 @ 5 1/2  
Jack Chain, Iron.....75&75&5  
Jack Chain, Brass.....70&70&5

**Chalk—**

White.....\$ gr 50¢  
Red.....\$ gr 70¢  
Blue.....\$ gr 85¢  
See also Crayons.

**Chalk Lines—****See Lines.****Chisels—**

Socket Framing and Firmer,  
P. S. & W.....75&10 @ 75¢  
New Haven.....10&5  
Wetherby.....10&5  
Merrill.....10&5  
Ohio Tool Co.....10&5  
Douglas.....75&75&5  
Buck Bros.....30  
Merrill.....60&10&5  
L. & I. J. White.....30&30&5

Tanged and Miscellaneous.  
Tanged Firmers.....40&10&50  
Butcher's.....\$1.75 @ \$5.00  
Spear & Jackson's.....\$5 to \$2  
Buck Bros.....30  
Cold Chisels, \$ 1.....16 @ 19¢

**Chucks—**

Beach Pat.....each, \$8.00.....20¢  
Morse's Adjustable, each, \$7.00, 20¢ @ 20¢  
Daubury.....each, \$6.00, 30¢ @ 30¢  
Syracuse, Balz Pat.....25¢  
Skinner's Pat. Drill Chucks.....40¢  
Skinner's Independent Lathe Chucks.....40¢  
Skinner's Pat. Comb. Chuck.....40¢

**Clamps—**

R. I. Tool Co.'s Wrought Iron.....25¢  
Adjustable, Gray's.....20¢  
Adjustable, Lambert's.....20¢  
Adjustable, Snow's.....40&5  
Adjustable, Hammers.....15¢  
Adjustable, Stearn's.....20&10  
Stearn's Adjustable Cabinet and Corner.....20&10  
Cabinet, Sargent's.....60&10  
Carriage Makers, Sargent's.....70&10  
Eberhard Mfg. Co.....40&10  
Warner's.....40&10 @ 40¢ & 10¢  
Saw Clamps, see Vises.

**Clips—**

Norway, Axle, 1/2 to 5-16.....55&55&5  
2nd grade Norway Axle, 1/2 to 5-16.....65&55&5  
Superior Axle Clips.....60&55&70  
Norway Spring Bar Clips, 5-16.....60&55&5  
Wrought Iron Felice Clips.....\$ 1.50  
Steel Felice Clips.....\$ 1.50  
Baker Axle Clips.....25¢

**Cockeyes.....50¢****Cocks, Brass.**

Hardware list.....50&25

**Coffee Mills—**

Box and Slide, List Jan. 1, 1888.....60&25  
American, Enterprise Mfg Co. 20&10&30  
The Swift, Lane Bros.....20&10

**Compasses Dividers, &c—**

Compasses, Callipers, Dividers, 70¢ @ 70¢ & 10¢  
Benis & Call Co.'s  
Dividers.....80&55  
Compasses & Callipers.....50&55  
Wing and Inside or Outside.....50&55  
Double.....60¢  
Call's Pat. Inside.....30¢  
Excelsior.....50¢  
J. Stevens & Co.'s.....25&10

Starrett's  
Spring Callipers and Dividers 25&10&10  
Lock Callipers and Dividers.....25&10  
Combination Dividers.....25&10

**Coopers' Tools—**

Bradley's.....20¢  
Barton's.....20&20&5  
L. & J. White.....20&5  
Albertson Mfg. Co.....25¢  
Beatty's.....30¢  
Sandusky Tool Co.....30&30&5

**Corkscrews—**

Humason & Beckley Mfg. Co. 40¢ @ 40¢ & 10¢  
Clough's Pat.....33 1/2 @ 33 1/2 & 5  
Howe Bros & Hulbert.....35¢

**Cork Knives and Cutters—**

Bradley's.....10¢  
Wadsworth's.....25¢

**Cradles—**

Grain.....50&5&2 @ 50¢ & 10¢ & 25¢

**Crayons.**

White Crayons, \$ gr 12¢ @ 12¢ & 10¢  
D. M. Stewart Mfg. Co., Metal Work.....35¢  
D. M. Stewart Mfg. Co., Rolling Mill.....25¢  
\$ gr, \$2.50.....25¢  
See also Chalk.

**Crow Bars—**

Cast Steel.....\$ 14¢  
Iron, Steel Points.....\$ 3 1/2¢

**Curry Combs—**

Fitch's.....50&10 @ 50¢ & 10¢ & 10¢  
Rubber per doz \$10.00.....20¢  
Perfect.....50¢

**Curtain Pins—**

Silvered Glass.....net  
White Enamel.....net

**Cutlery—**

Beaver Falls & Booth's.....33 1/2  
Wostenholme.....\$7.75 to \$2

**Dampers, &c—**

Dampers, Buffalo.....40&10  
Buffalo Damper Clips.....40&10  
Crown Damper.....40¢  
Excelsior.....40&10

**Dividers—**

See Compasses.

**Dog Collars—**

Embossed, Gilt, Pope & Steven's list.....30&10  
Brass, Pope & Steven's list.....40¢

**Door Springs—**

Torrey's Rod, regular size.....\$ doz \$1.30  
Gray, \$ gr, \$20.00.....20¢  
Bee Rod \$ gr, \$20.00.....20¢  
Warner's No. 1, \$ doz, \$2.50; No. 2, \$3.30.....40&10 @ 50¢  
Gem (Coll), list April 19, 1888.....10¢  
Star (Coll), list April 19, 1888.....20¢  
Victor (Coll).....60¢ @ 60¢ & 10¢  
Champion (Coll).....60¢ @ 60¢ & 10¢  
Philadelphia, 5 in., \$5.00; 8 in., \$7.75.....\$ 15.00  
Cowell's.....No. 1, \$ doz, \$18.00; No. 2, \$15.00.....50¢  
Rubber, complete, \$ doz, \$4.50.....55¢ & 10¢  
Hercules.....50¢  
Shaw Door Check and Spring, 25¢ @ 30¢ & 35¢

**Drawing Knives—**

Wetherby.....75&10 @ 75¢ & 10¢  
P. S. & W.....5¢  
New Haven.....60&10 @ 60¢ & 10¢ & 5¢  
Merrill.....75&75&5  
Douglas.....15¢ @ 10¢ & 25¢  
L. & I. J. White.....35¢  
Bradley's.....25¢ @ 33 1/2¢  
Adjustable Handle.....25¢ @ 33 1/2¢  
Wilkinson's Folding.....25¢ @ 25¢ & 5¢

**Drills and Drill Stocks—**

Blacksmith's.....each \$1.75  
Blacksmith's Self-Feeding, each \$7.50, 20¢  
Breast, P. S. & W.....40&10  
Breast, Wilson's.....30&5  
Breast, Millers Falls.....each \$3.00, 25¢  
Breast, Bartholomew's.....each \$2.50, 25¢ @ 20¢ & 5¢  
Ratchet, Merrill's.....20¢ @ 20¢ & 5¢  
Ratchet, Ingersoll's.....20¢ @ 20¢ & 5¢  
Ratchet, Parker's.....20¢ @ 20¢ & 5¢  
Ratchet, Whitney's.....20¢ @ 20¢ & 5¢  
Ratchet, Weston's.....20¢ @ 20¢ & 5¢  
Ratchet, Moore's Triple Action.....25¢ @ 30¢  
Ratchet, Curtis & Curtis.....30¢  
Whitney's.....Adjustable, \$12.00.....20&10  
Wilson's Drill Stocks.....10¢  
Automatic Boring Tools.....\$1.75 @ \$1.85

**Twist Drills—**

Morse.....50&10&5  
Standard.....50&10&5  
Syracuse (Metal) list.....50&10  
Cleveland.....50&10&5  
Williams.....50&10&5  
New Process.....50&10&5

**Drill Bits.—See Augers and Bits.****Drill Chucks.—See Chucks.****Dripping Pans—**

Small sizes.....\$ 10¢ @ 10¢  
Large sizes.....\$ 10¢ @ 10¢

**Egg Beaters.**

Dover.....\$ doz \$1.50  
National, \$ doz \$4.50.....33 1/2¢  
Family (T. & S. Mfg. Co.), \$ gr \$17.00 @ \$18.00  
Duplex (Standard Co.).....\$ gr \$15.00  
Rival (Standard Co.).....\$ gr \$12.00  
Large Duplex (Standard Co.), \$ doz \$4.50  
Triumph (T. & S. Mfg. Co.), \$ gr \$10.50 @ \$11.50

Advance, No. 1.....\$ gr \$10.50  
Advance, No. 2.....\$ gr \$10.00  
Bryant's.....\$ gr \$14.00  
Ayres' Spiral.....\$ gr \$5.00  
Double (H. & R. Mfg. Co.).....\$ gr \$16.20  
Easy (H. & R. Mfg. Co.).....\$ gr \$14.00  
Triple (H. & R. Mfg. Co.).....\$ gr \$16.20  
Spiral (H. & R. Mfg. Co.).....\$ gr \$4.50  
Paine, Diehl & Co.'s.....\$ gr \$24.00

**Egg Poachers—**

Buffalo Steam Egg Poachers, \$ doz, No. 1, \$6.00; No. 2, \$9.00.....25¢

**Electric Bell Sets.—**

Wollensak's.....20¢  
Bigelow & Dowse.....20¢

**Emery—No. 4 to No. 54 to Flour, CP**

46 gr.....\$ 5¢  
Kegs, \$ 10.....\$ 5¢  
1/2 kegs, \$ 10.....\$ 5¢  
1/4 kegs, \$ 10.....\$ 5¢  
10-lb cans, 10 in case.....\$ 6 1/2¢  
than 10.....\$ 10¢  
7 1/2¢

**Enamelled and Tinned Ware—****See Hollow-Ware.****Escatcheon Pins—**

Iron, list Nov. 11, 1885, 50¢ @ 50¢ & 10¢ & 5¢  
Brass.....60¢ @ 60¢ & 5¢

**Escatcheons.**

Door Lock.....Same dis as Door Locks.  
Brass Thread.....60¢ @ 60¢ & 10¢  
Wood.....25¢

**Faucets.—**

Fenn's.....40¢  
Hohren's Pat. Rubber Ball.....25¢  
Fenn's Cork Stops.....33 1/2¢  
Star.....60¢  
Frary's Pat. Petroleum.....40¢ & 5¢ & 2¢  
B. & L. B. Co.

West's Lock, Open and Shut Key.....50¢  
Star, Metal Plug, new list.....40¢  
Locknut, Metal Plug, reduced list.....60¢  
Metallic Key, Leather Lined.....60¢ @ 10¢ & 10¢

**Cork Lined.....70¢ @ 70¢ & 10¢**

Burnside's Red Cedar.....50¢  
Burnside's Red Cedar, bbl lots.....50¢ @ 10¢  
John Sommers

IXL, 1st quality, Cork Lined.....50¢  
Diamond Lock.....40¢  
Perfection, Fla. Red Cedar.....50¢  
Goodenough Cedar.....50¢  
Boss Metallic Key.....60¢  
Reliable Cork Lined.....60¢  
Western Pattern Cork Lined.....50¢

**Self-Measuring**

Enterprise, \$ doz \$50.00.....20&10  
Lane's, \$ 3oz \$36.00.....25&10  
Victor, \$ doz \$36.00.....25&10

**Felloe Plates.....\$ 10¢ @ 10¢****Fifth Wheels.—**

Derby and Cincinnati.....50¢ & 5¢  
Brewster.....55¢ & 5¢

**Files—****Domestic—**

Nicholson Files, Rasps, &c.....60¢ @ 60¢ & 10¢ & 5¢  
Nicholson (X. F.) Files.....75¢  
Nicholson's Royal Files (Seconds).....75¢  
(extra prices on certain sizes)  
Other makers, best brands.....60¢ @ 60¢ & 10¢ & 10¢

Fair brands.....60¢ @ 60¢ & 10¢ & 10¢  
Second quality.....70¢ @ 70¢ & 10¢ & 10¢  
Nicholson's Horse Rasps.....60¢ @ 60¢ & 10¢ & 10¢

Heller's Horse Rasps.....50¢ & 7 1/2¢ @ 50¢ & 10¢  
McCaffrey's Horse Rasps.....50¢ & 10¢  
Chelsea Horse Rasps, Hand Cut.....50¢ @ 10¢

**Imported—**

J. & Riley Carr.....List April 1, 1883, 15¢  
J. & Riley Carr Horse Rasps.....10¢  
Moss & Gamble.....List April 1, 1883, 15¢  
Butcher.....Butcher's list, 20¢  
Stubs.....Stubs list, 25¢ @ 30¢  
Turton's.....Turton's list, 20¢ @ 25¢  
Greaves' Horse Rasps, American list, 60¢

**Fluting Machines—**

Knox, 4 1/2-inch Rolls.....\$3.25 each 35¢  
Knox, 6-inch Rolls.....\$3.00 each 35¢  
Eagle, 3 1/2-inch Roll, \$2.15.....35¢  
Eagle, 5 1/2-inch Roll, \$2.55.....35¢  
Crown, 4 1/2 in., \$3.50; 6 in., \$4.00; 8 in., \$6.50 each.....35¢  
Crown Jewel, 6 in.....\$3.50 each, 35¢  
American, 5 in., \$3.00; 6 in., \$3.40; 7 in., \$4.50 each.....35¢  
Domestic Fluter.....each, \$1.50  
Geneva Hand Fluter, White Metal.....\$ doz \$12, 25¢

Crown Hand Fluter, Nos. 1, \$15.00; 2, \$12.50; 3, \$10.00.....30¢  
Shepard Hand Fluter, No. 85 \$ doz \$11.00.....40¢  
Shepard Hand Fluter, No. 110 \$ doz \$11.00.....40¢  
Shepard Hand Fluter, No. 95 \$ doz \$8.00.....40¢  
Clark's Hand Fluter \$ doz \$15.00.....35¢  
Combined Fluter and Sad Iron.....\$ doz \$15.00.....30¢  
Buffalo.....\$ doz \$10.00.....10¢

**Fluting Scissors—45¢****Fodder Squeezers—**

Blair's.....\$ doz \$2.00  
Blair's "Climax".....\$ doz \$1.25

**Forks—**

Hay, Manure, &c., Asso. List.....70¢  
Hay, Manure, &c., Phila. List 60¢ @ 60¢ & 5¢  
Plated, see Spoons.

**Freezers, Ice Cream—**

Buffalo Champion.....65¢ & 65¢ & 5¢  
Shepard's Lightning.....65¢ @ 65¢ & 5¢  
White Mountain.....50¢ @ 20¢ & 5¢  
New Arctic.....50¢ @ 10¢ & 5¢  
American.....60¢  
Gem.....65¢  
Blizzard.....70¢  
Double Action Crown.....60¢  
Crown.....60¢  
Peerless and Giant.....60&10  
Zero and Pet.....65&10  
Boss.....65&10 @ 10¢  
Keystone, each, \$1.50.....25¢

**Fruit and Jelly Presses—**

Enterprise Mfg. Co.....20&10 @ 30¢  
Henis.....\$ doz \$2.50  
Shepard's Queen City.....40¢

**Fry Pans—**

High List.....75¢ @ 10¢ & 75¢ @ 1¢ & 5¢  
No.....0 1 2 3 4  
\$ doz.....\$3.75 \$4.70 \$5.30 \$5.95 \$6.55  
No.....5 6 7 8  
\$ doz.....\$7.50 \$8.75 \$10.00 \$11.25

**Low List.....70¢ @ 70¢ & 10¢**

No.....0 1 2 3 4  
\$ doz.....\$3.00 \$3.75 \$4.25 \$4.75 \$5.25  
No.....5 6 7 8  
\$ doz.....\$6.00 \$7.00 \$8.00 \$9.00

**Fuse—**

\$ 1000 ft  
Common Hemp Fuse, for dry ground, \$2.70  
Common Cotton Fuse, for dry ground, 2.85  
Single Taped Fuse, for wet ground, 4.25  
Double Taped Fuse, for very wet gr., 5.40  
Triple Taped Fuse, for very wet gr., 6.50  
Small Gutta Percha Fuse, for water, 7.50  
Large Gutta Percha Fuse, for water, 12.00

**Gauges—**

Marking, Mortise, &c.....60&10  
Starrett's Surface, Center and Scratch.....25&10  
Wire, low list.....10&10  
Wire, Wheeler, Madden & Co.....10¢  
Wire, Morse's.....50¢ @ 50¢ & 5¢  
Wire, Brown & Sharpe's.....10¢ @ 20¢

**Gimlets—**

Nail and Spike.....50¢ @ 10¢ & 5¢  
"Eureka" Gimlets.....40¢ @ 10¢  
"Diamond" Gimlets.....\$ gr \$5.00  
Double Cut, Shepardson's.....45¢ @ 45¢ & 5¢  
Double Cut, Ives.....60¢ @ 60¢ & 5¢  
Double Cut, Douglass'.....40¢ @ 10¢  
"Bee," \$ gr \$12.....25¢ @ 25¢ & 5¢

**Glue—**

Le Page's Liquid.....25¢ @ 25¢ & 5¢  
Upton's Liquid.....35¢  
Le Page & Co.'s Improved Process.....25¢ @ 25¢ & 5¢

**Glue Pots—**

Tinned.....40¢  
Enamelled.....40¢ & 5¢  
Family, Howe's "Eureka".....40¢  
Family, L. F. C.'s "Handy".....50¢

**Grindstones—**

Small, at factory.....\$ ton \$7.50 @ 9.00

**Grindstone Fixtures—**

Sargent's Patent.....70¢ @ 10¢  
Reading Hardware Co.....30¢ @ 10¢

**Hack Saws.—****See Saws.****Halters—**

Covert's, Rope, 1/2-in. Jute.....50¢ & 25¢  
Covert's, Rope, 1/2-in. Hemp.....50¢ & 25¢  
Covert's Adj. Rope Halters.....40¢ & 25¢  
Covert's Hemp Horse and Cattle Tie.....50¢ & 25¢  
Covert's Jute Horse and Cattle Ties.....60¢ @ 10¢ & 25¢

**Hammers—**

Handled Hammers—  
Maydole's, list Dec. 1, '85.....25¢ @ 10¢ & 35¢  
Buffalo Hammer Co. (List Jan. 15, '87)  
Humason & Beckley.....50¢ @ 50¢ & 10¢  
Atha Tool Co.....40&10 @ 50¢  
Fayette H. Plumb.....40&10 @ 50¢  
C. Hammond & Son.....40&10 @ 50¢  
Verree.....5¢  
Magnetic Tack, Nos. 1, 2, 3, \$1.25, 1.50 & 1.75.....30&10

Nelson Tool Works.....40&10  
Warner & Nobles.....20¢ @ 25¢  
Peck, Stow & Wilcox.....40¢  
Sargent's.....33 1/2¢ @ 10¢  
Sargent's.....33 1/2¢ @ 10¢  
Wilkinson's Smiths.....10¢ @ 11¢ & 11¢

**Handcuffs and Leg Irons—**

R. I. Tool Co., Handcuffs, \$15.0



**Cross-Cut Saw Handles—**  
 Atkins' No. 1 Loop, pair, 28¢; No. 3, 18¢; No. 6, 16¢; No. 2 and No. 4 Reversible, 18¢.  
 Boynton's Loop Saw Handles, 50¢.  
 Champion, 15¢.

**Hangers—**  
 Barn Door, old pattern, 60¢; 10¢; 10¢; 70¢  
 Barn Door, New England, 60¢; 10¢; 10¢; 70¢  
 Samson Steel Anti-Friction, 55¢  
 Orleans Steel, 55¢  
 Hamilton Wrought Wood Track, 55¢  
 U. S. Wood Track, 55¢  
 Champion, 60¢; 10¢  
 Rider and Wooster, Medina Wfg. Co.'s list, 70¢  
 Climax Anti-Friction, 70¢  
 Climax Anti-Friction for Wood Track, 55¢  
 Zenith for Wood Track, 55¢  
 ed's Steel Arm, 50¢  
 allege, Barn Door, 50¢  
 Sterling's Improved (Anti-Friction), 65¢; 10¢  
 Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00.  
 Cherrier, 50¢; 10¢  
 Kidder's, 50¢; 10¢  
 The Boss, 50¢; 10¢  
 Best Anti-Friction, 60¢; 10¢  
 Duplex (Wood Track), 60¢; 10¢  
 Terry's Pat., pair doz pr. 4 in, \$10.00; 5 in, \$12.00.  
 Cronk's Pat., No. 4, \$12.00; No. 5, \$14.40;  
 No. 6, \$18.00.  
 Wood Track Iron Rail, pair ft. 10¢.  
 15¢; 60¢

Carrier Steel Anti-Friction, 50¢; 50¢; 50¢  
 Architect, pair set \$6.00.  
 Eclipse, pair set \$4.50.  
 Felix, pair set \$4.50.  
 Richards', 30¢; 30¢; 10¢  
 Lane's Steel Anti-Friction, 50¢  
 Ball Bearing Door Hanger, 20¢; 10¢; 25¢; 10¢  
 Warner's Pat., 20¢; 20¢; 10¢  
 Stearns' Anti-Friction, 20¢; 20¢; 10¢  
 Stearns' Challenge, 25¢; 10¢; 25¢; 10¢; 10¢  
 Faultless, 40¢; 40¢; 50¢  
 American, pair set \$6.00.  
 Rider & Wooster, No. 1, 62¢; No. 2, 75¢.  
 Paragon, Nos. 1, 2 and 3, 40¢; 10¢  
 Cincinnati, 25¢; 10¢  
 Paragon, Nos. 5, 6, 7 and 8, 40¢; 10¢  
 Crescent, 40¢; 60¢; 10¢  
 Nickel, Cast Iron, 50¢  
 Nickel, Malleable Iron and Steel, 40¢  
 Scranton Anti-Friction Single Strap, 33¢  
 Scranton Anti-Friction Double Strap, 40¢  
 Universal Anti-Friction, 40¢  
 Wild West, 4 in. Wheel, \$15.00; 5 in. Wheel, \$21.00.  
 Star, 40¢; 10¢; 40¢; 10¢; 5¢  
 May, 50¢; 50¢; 50¢; 10¢  
 Barry, \$6.00.  
 40¢; 10¢

#### Harness Snaps—

See Snaps.  
**Hatchets—**  
 List Jan. 1, 1886.  
 Isaiah Blood, 35¢; 40¢  
 Hunt's Shingling, Lath and Claw, 40¢; 50¢  
 Hunt's Broad, 40¢  
 Buffalo Hammer Co., 40¢; 10¢; 50¢  
 Hurd's, 40¢; 10¢; 50¢  
 Fayette R. Plumb, 40¢; 10¢; 50¢  
 Wm. Mann, Jr., & Co., 50¢; 50¢; 50¢  
 Underhill Edge Tool Co., 40¢; 50¢; 10¢  
 Underhill's, Haines and Bright, 33¢  
 C. Hammond & Son, 40¢; 10¢; 50¢  
 Simmons', 40¢; 10¢; 50¢  
 Peck's, 40¢; 10¢; 40¢; 10¢; 5¢  
 Kelly's, 50¢; 50¢; 50¢  
 Sargent & Co., 50¢  
 Ten Eyck Edge Tool Co., 40¢; 10¢; 40¢; 10¢; 5¢  
 Collins, 40¢; 10¢  
 Schulte, Lohoff & Co., 50¢; 30¢; 50¢

**Hay and Straw Knives—**  
 Lightning, Wm.'s, price list \$18.00, 25¢  
 But jobs cut this price freely.  
 Gem, pair doz \$10  
 Wadsworth's, 40¢; 75¢; 40¢; 10¢  
 Carter's Needle, pair doz \$11.50; \$12.00  
 Heath's, pair doz \$13.50; \$14.00  
 Auburn Hay, Com. and Spear Point, 40¢  
 Auburn, Straw, 40¢  
 Nolin's Hay, pair doz \$10.00

#### Hinges—

**Wrought Iron Hinges**  
 Strap and T, 75¢; 50¢; 75¢; 10¢  
 Screw Hook and, 6 to 12 in., pair, 3¢  
 Strap, 14 to 20 in., pair, 3¢  
 22 to 30 in., pair, 3¢  
 Heavy Welded, 6 to 12 in., pair, 3¢  
 Hook, 14 to 20 in., pair, 3¢  
 22 to 30 in., pair, 3¢  
 Screw Hook, 1/2 in., pair doz \$1.50  
 and Eye, 3/4 in., pair doz \$2.45  
 3/4 in., pair doz \$3.80  
 Rolled Blind Hinges, Nos. 32 and 34, 50¢; 10¢  
 Rolled Blind Hinges, Nos. 232 and 234, 50¢; 10¢  
 Rolled Plate, 70¢; 10¢  
 Rolled Raised, 70¢; 10¢  
 Plate Hinges (8, 10 and 12 in., pair, 5¢  
 "Providence," over 12 in., pair, 4¢  
**Spring Hinges**  
 Geer's Spring and Blank Butts, 40¢  
 Union Spring Hinge Co.'s list, March, 1886, 20¢  
 Acme, 30¢  
 U. S., 25¢; 10¢  
 Empire and Crown, 20¢  
 Hero and Monarch, 55¢  
 American, Gem, and Star, 20¢  
 Oxford, 20¢  
 Barker's Double Acting, 20¢; 10¢  
 Union Mfg. Co., 25¢  
 Bommer's, pair doz \$15.00; 30¢  
 Buckman's, 15¢; 20¢  
 Chicago, 30¢  
 Wiles', 10¢  
 Devore's, 40¢  
 Rex, 40¢  
 Royal, 60¢  
 Reliable, 60¢  
 Champion, 60¢  
**Gate Hinges**  
 Western, pair doz \$4.40, 60¢  
 N. E., pair doz \$7.00, 55¢  
 N. E. Reversible, pair doz \$5.20, 50¢; 10¢  
 Clark's, Nos. 1, 2, 3, 60¢; 10¢; 50¢  
 N. Y. State, pair doz \$6.00, 50¢; 10¢  
 Automatic, pair doz \$14.50, 50¢  
 Common Sense, pair doz \$4.50, 50¢  
 Seymour's, 45¢; 10¢  
 Shepar, 60¢; 10¢; 50¢  
 Reed's, Lath and Hinges, pair doz \$12.00, 50¢

#### Steel Hinges—

Parker, 75¢; 25¢  
 Palmer's, 50¢; 50¢; 10¢  
 Seymour, 70¢; 25¢  
 Nicholson, 45¢; 10¢  
 Huffer, 50¢

Clark's, Nos. 1, 3, 5, 40 and 50  
 Clark's Mortise Gravity, 75¢; 10¢; 50¢; 80¢  
 Sargent's, Nos. 1, 3, 5, 11, 75¢; 10¢; 55¢; 10¢; 50¢  
 Reading's Gravity, 75¢; 10¢; 75¢; 10¢; 50¢  
 Shepard's, 75¢; 10¢; 50¢  
 Noiseless, 75¢; 10¢; 50¢  
 Buffalo, 80¢; 25¢  
 Clark's Genuine Pat., 80¢; 50¢  
 O. S., Lull & Porter, 75¢; 10¢; 80¢  
 Acme, Lull & Porter, 75¢; 50¢  
 Queen City Reversible, 75¢  
 Clark's Lull & Porter, Nos. 0, 1, 15¢, 25¢, 30¢  
 North's Automatic Blind Fixtures, No. 2, for Wood, \$10.50; No. 3, for Brick, \$13.50.  
 25¢; 25¢

#### Hoes—

**Handled—**  
 Garden, Mortar, &c., 70¢  
 Planter's, Cotton, &c., 70¢  
 Warren Hoe, 80¢  
 Magic, pair doz \$4.00

#### Eye—

D. & H. Scovill, 20¢  
 Lane's Crescent Planter Pattern, 45¢; 50¢  
 Lane's Razor Blade, Scovill Pattern, 30¢  
 Maynard, S. & O. Pat., 45¢; 50¢  
 Sandusky Tool Co., S. & O. Pat., 60¢  
 Hubbard & Co., S. & O. Pat., 60¢  
 Chattanooga Tool Co., S. & O. Pat., 60¢  
 Grub, 60¢; 60¢; 10¢

#### Hog Rings and Ringers—

Hill's Improved Ringers, pair doz \$4.25  
 Hill's Old Style Ringers, pair doz \$2.75  
 Hill's Rings, pair doz \$4.50  
 Hill's Rings, pair doz \$2.15; \$2.25  
 Perfect Ringers, pair doz \$1.60; \$2.15  
 Perfect Ringers, pair doz \$2.15; \$2.25  
 Blair's Hog Ringers, pair doz \$2.25; \$2.50  
 Brown's Ringers, pair doz \$2.00; \$2.50  
 Champion Ringers, pair doz \$2.00  
 Champion Rings, Double, pair doz \$2.25  
 Brown's Ringers, pair doz \$2.00  
 Brown's Rings, pair doz \$1.25; \$1.50

#### Hoisting Apparatus—

Moore's Hand Hoist, with Lock, 20¢  
 Brake, 20¢  
 Moore's Differential Pulley Block, 40¢  
 Energy Mfg. Co.'s, 25¢

#### Holders, File and Tool—

Balz Pat., pair doz \$4.00; 25¢  
 Nicholson File Holders, 20¢

#### Hollow-Ware—

**Iron—**  
 Stove Hollow-Ware—  
 Ground, 60¢; 60¢; 50¢  
 Underground, 60¢; 10¢; 60¢; 10¢  
 Boilers and Saucepans, 40¢; 50¢  
 Tinned Boilers and Saucepans, 40¢  
 Gray Enamelled-Ware—  
 Stove, 45¢; 50¢  
 Maslin Kettles, 60¢; 10¢; 60¢; 10¢; 10¢  
 Boilers and Saucepans, 40¢; 50¢  
 Adams and Granite Ware, list Jan. 1, 1889, 33¢; 40¢  
 Rustless Hollow-Ware, 50¢; 50¢; 50¢  
 Galvanized Tea-Kettles—  
 Inch, 6 7 8 9  
 Each, 55¢ 60¢ 65¢ 75¢

#### Silver Plated—

4 mo. or 5¢ cash in 30 days.  
 Reed & Barton, 40¢; 50¢  
 Meriden Britannia Co., 40¢; 50¢  
 Simpson, Hall, Miller & Co., 40¢; 50¢  
 Rogers' Brother, 40¢; 50¢  
 Hartford Silver Plate Co., 40¢; 50¢; 50¢  
 William Rogers Mfg. Co., 40¢; 50¢; 50¢

#### Hooks—

**Cast Iron—**  
 Bird Cage, Sargent's list, 60¢; 10¢; 10¢  
 Bird Cage, Reading, 60¢; 10¢; 10¢  
 Clothes Line, Sargent's list, 60¢; 10¢; 10¢  
 Clothes Line, Reading list, 60¢; 10¢; 10¢; 10¢  
 Ceiling, Sargent's list, 55¢; 10¢; 10¢  
 Harness, Reading list, 55¢; 10¢; 55¢; 10¢; 10¢  
 Coat and Hat, Sargent's list, 55¢; 10¢; 55¢; 10¢; 10¢  
 Coat and Hat, Reading, 50¢; 10¢; 50¢; 10¢; 10¢

#### Wrought Iron—

Cotton, pair doz \$1.25  
 Cotton Pat. (N.Y. Mallet & Handle Wks.), 30¢  
 Tassel and Picture (T. & S. Mfg. Co.), 50¢  
 Wrought Stapler, Hooks, &c., 30¢  
 See Wrought Goods.

#### Wire—

Wire Coat and Hat, Gem, list April, 1886, 50¢  
 Wire Coat and Hat, Miles', list April, 1886, 50¢  
 Indestructible Coat and Hat, 45¢  
 Wire Coat and Hat, Standard, 45¢  
 Belt, 80¢; 80¢; 10¢

Grass, No. 2, \$2.00; No. 3, \$2.25; No. 4, \$2.50  
 Nolin's Grass, pair doz \$2.25  
 Rush, 55¢; 60¢  
 Whiffletree—Patent, 55¢  
 Hooks and Eyes—Malleable Iron, 70¢; 70¢; 10¢  
 Hooks and Eyes—Brass, 60¢; 10¢; 10¢  
 Fish Hooks, American, 50¢  
 Bench Hooks, See Bench Stops.

#### Horse Nails—

Nos. 6 7 8 9 10  
 Ausable, 28¢; 26¢; 25¢; 24¢; 23¢.  
 25¢; 10¢; 25¢; 10¢; 10¢  
 Clinton, Fin., 10¢; 6¢; 11¢, net  
 Essex, 28¢; 26¢; 25¢; 24¢; 23¢.  
 25¢; 10¢; 25¢; 10¢; 10¢  
 Lyra, 25¢; 23¢; 22¢; 21¢; 20¢.  
 40¢; 10¢; 50¢; 50¢  
 Snowden, 25¢; 23¢; 22¢; 21¢; 20¢.  
 40¢; 10¢; 50¢; 50¢  
 Putnam, 23¢; 21¢; 20¢; 19¢; 18¢.  
 1000 lb. in year 15¢  
 Vulcan, 23¢; 21¢; 20¢; 19¢; 18¢.  
 123¢; 50¢  
 Northwest'n, 25¢; 23¢; 22¢; 21¢; 20¢.  
 10¢; 10¢; 50¢; 50¢  
 Globe, 23¢; 21¢; 20¢; 19¢; 18¢.  
 20¢; 21¢; 20¢  
 Boston, 23¢; 21¢; 20¢; 19¢; 18¢.  
 20¢; 21¢; 20¢  
 A. C., 25¢; 10¢; 33¢; 45¢  
 25¢; 10¢; 33¢; 45¢  
 C. B.-K., 25¢; 23¢; 22¢; 21¢; 20¢.  
 25¢; 10¢; 33¢; 45¢  
 Champlain, 28¢; 6¢; 25¢; 24¢; 23¢.  
 25¢; 10¢; 10¢

New Haven, 28¢; 26¢; 25¢; 24¢; 23¢.  
 25¢; 10¢; 25¢; 10¢; 10¢  
 Saranac, 23¢; 21¢; 20¢; 19¢; 18¢.  
 30¢; 10¢  
 Champion, 25¢; 23¢; 22¢; 21¢; 20¢.  
 10¢; 10¢; 10¢  
 Capewell, 28¢; 26¢; 25¢; 24¢; 23¢.  
 35¢; 50¢; 35¢; 10¢  
 Star, 23¢; 21¢; 20¢; 19¢; 18¢.  
 10¢; 10¢; 10¢; 12¢; 5¢  
 Anchor, 23¢; 21¢; 20¢; 19¢; 18¢.  
 35¢  
 Western, 23¢; 21¢; 20¢; 19¢; 18¢.  
 40¢; 10¢  
 Empire Bronzed, 14¢; 14¢; 14¢.

#### Horse Shoes—See Shoes Horse.

#### Hose, Rubber—

Competition, 75¢; 10¢; 75¢; 10¢; 50¢  
 Standard, 70¢; 70¢; 10¢  
 Extra, 60¢; 60¢; 10¢  
 N. Y. B. & P. Co., Para, 30¢; 10¢  
 N. Y. B. & P. Co., Extra, 50¢  
 N. Y. B. & P. Co., Dundee, 60¢; 10¢; 50¢

#### Huskers—

Blair's Adjustable, pair gr \$8.00  
 Blair's Adjustable Clipper, pair gr 7.00

#### Indurated Fiber-Ware—25¢.

Spittoons, No. 2, pair doz, \$9.00  
 Basins, Ringed, pair doz, No. 1, \$4.80;  
 No. 2, \$4.20; No. 3, \$3.60  
 Washbasins, Nested, Nos. 0, 1, 2 and 3 (4 pieces), pair nest, \$7.50  
 Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), pair nest, \$3.70  
 Butter Bowls, 15, 17 and 19-inch (3 pieces), pair nest, \$2.25  
 Liquid Measures, pt., qt., 2 qt. and funnel (4 pieces), pair set, \$4.00  
 Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), pair set, \$3.00  
 See also *Fails*.

#### Jack Screws—See Screws.

**Kettles—** Spun, Stamped.  
 Brass, 7 to 17 in., pair doz, 24¢ 21¢  
 Brass larger than 17 in., 26¢ 23¢  
 Enamelled and Tea Kettles, 26¢ 23¢  
 See *Hollow-Ware*.

#### Keys—

Lock Ass'n list Dec. 30, 1888, 50¢; 10¢  
 Eagle, Cabinet, &c., 33¢; 25¢  
 Hotchkiss' Brass Blanks, 40¢  
 Hotchkiss' Copper and Tinned, 40¢  
 Hotchkiss' Pad and Cab., 35¢  
 Ratchet Bed Keys, pair doz \$4.00, 15¢  
 Wollensak Tinned, 50¢; 10¢

#### Knife Sharpeners—

Parkin's, 40¢  
 Applewood Handles, pair doz \$6.00, 40¢  
 Rosewood or Cocobolo, pair doz \$6.00, 40¢

#### Knives—

Wilson's Butcher Knives, 25¢; 30¢  
 Ames' Butcher Knives, 25¢  
 Foster Bros' Butcher, &c., 40¢  
 Nichols' Butcher Knives, 40¢; 10¢  
 Ames' Shoe Knives, 20¢; 25¢  
 Ames' Bread Knives, pair doz \$1.50, 15¢; 20¢  
 Moras' Saws and Bread, 20¢  
 Hay and Straw, See Hay Knives.  
 Table and Pocket, See Cutlery.  
 Corn, Auburn Mfg. Co. Western Pat., 82¢  
 Corn, Auburn Mfg. Co. Crescent, \$3.50

#### Knobs—

Door Mineral, 65¢; 60¢  
 Door Por. Jap'd, 75¢; 78¢  
 Door Por. Nickel, \$2.00; \$2.25  
 Door Por. Plated, Nickel, \$2.00; \$2.25  
 Drawer, Porcelain, 60¢; 10¢; 60¢; 10¢; 10¢  
 Hemlock Door Knobs, 40¢; 10¢; 50¢  
 Yale & Towne Wood, list Dec., 1888, 40¢  
 Furniture, Plain, 75¢; 75¢; 10¢; 10¢  
 Furniture, Wood Screws, 25¢; 10¢  
 Base, Rubber Tip, 70¢; 10¢; 50¢  
 Picture, Judd's, 50¢; 10¢; 10¢; 70¢  
 Picture, Sargent's, 70¢; 10¢  
 Picture, Hemlock, 35¢; 50¢  
 Shutter, Porcelain, 65¢; 10¢  
 Carriage, Jap., pair doz \$6.00, 60¢; 10¢

#### Ladders—

Melting, Sargent's, 55¢; 10¢  
 Melting, Reading, 35¢; 10¢  
 Melting, Monroe's Pat., pair doz \$4.00, 40¢  
 Melting, F. S. & W., 35¢; 10¢; 40¢  
 Melting, Warner's, 30¢

#### Lanterns—

**Tubular—**  
 Plain with Guards, pair doz, \$4.00; \$4.25  
 Lift Wire, with Guards, \$4.50; \$4.75  
 Square Plain, with Guards, \$4.00; \$4.25  
 Sq. Lift Wire, with Guards, \$4.25; \$4.50  
 Without Guards, 25¢; 25¢; 25¢

#### Miscellaneous.

Police, Small, \$6.00; Medium, \$7.25;  
 Large, \$9.75. 20¢; 25¢

#### Lawn Mowers—

Standard City, 50¢; 10¢  
 Quaker City, 60¢; 10¢  
 Enterprise, 60¢; 10¢

#### Lemon Squeezers—

Porcelain Lined, No. 1, pair doz \$6.00, 25¢; 30¢

Wood, No. 2, pair doz \$3.00, 35¢  
 Wood, Common, pair doz \$1.70; \$1.75  
 Dunlap's Improved, pair doz \$3.75, 20¢  
 Sammis, No. 1, \$5.00; No. 2, \$9.12;  
 \$18; pair doz, 25¢; 10¢  
 Jennings' Star, pair doz \$2.50  
 The Boss, pair doz \$2.50  
 Dean's, Nos. 1, pair doz \$6.50; 2, \$5.35; 3, \$1.00  
 Little Giant, 50¢; 50¢; 50¢  
 King, 40¢; 50¢

#### Lines—

Cotton and Linen Fish, Draper's, 50¢  
 Draper's Chalk, 60¢  
 Draper's Masons' Linen, 84 ft., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25.  
 25¢  
 Cotton Chalk, 55¢  
 Samson, Cotton, No. 4, \$2; No. 4 1/2, \$2.50;  
 10¢  
 Silver Lake, Braided, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50;  
 \$7.00; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25.  
 25¢  
 Mason's Linen, No. 3 1/2, \$1.50; No. 4, \$2.00; No. 4 1/2, \$2.50.  
 45¢  
 Mason's Colored Cotton, 18 10 20  
 White Clothes, Nos. 18 10 20  
 \$3.60 \$3.00 \$2.6

Ventilator Cord, Samson Braided, White or Drab Cotton, pair doz \$7.50, 20¢

#### Locks, &c.—

**Door Locks, Latches, &c.**  
 R. & E. Mfg. Co., list Mar. 20, 1889, 60¢; 10¢; 60¢  
 Mallory, Wheeler & Co., list July, '88, 60¢; 10¢; 60¢  
 Sargent & Co., list Aug. 1, '88, 60¢; 10¢; 60¢  
 Reading Hardware Co., list Feb. 2, '88, 60¢; 10¢; 60¢  
 Note.—Lower net prices often made.  
 Perkins' Burglar Proof, 60¢; 25¢  
 Plate, 33¢; 25¢  
 F. Many's "Extension Cylinder" \$10.50

Barnes Mfg. Co., 40¢; 40¢; 10¢  
 Yale, 40¢; 10¢; 10¢  
 Deitz Flat Key, 30¢  
 L. & C. Round Key Latches, 30¢; 10¢  
 L. & C. Flat Key Latches, 33¢; 10¢  
 Romer's Night Latches, 15¢  
 Shepherdson or U. S., 40¢; 10¢  
 Felter or American, 40¢; 10¢  
 Seed's N. Y. Hasp Lock, 25¢

#### Cabinet—

Eagle, Gaylord Par- list March, '84, rev ker and Corbin, Jan. 1, '85, 33¢; 25¢  
 Deitz, Nos. 30 to 39, 40¢  
 Deitz, Nos. 51 to 63, 40¢; 10¢  
 Deitz, Nos. 86 to 96, 40¢; 10¢  
 Stoddard Lock Co., 30¢; 33¢; 45¢  
 "Champion" Night Latches, 40¢  
 Barnes Mfg. Co., 40¢; 40¢; 10¢  
 Eagle and Corbin Trunk, 25¢; 25¢  
 "Champion" Cab. and Combin, 33¢; 25¢  
 Yale, 40¢; 10¢; 10¢  
 Romer's, 25¢

#### Padlocks—

List Dec. 23, '84, 75¢; 75¢; 10¢  
 Yale Lock Mfg. Co.'s, 25¢; 25¢  
 Eagle, 25¢; 25¢  
 Eureka, Eagle Lock Co., 40¢; 40¢  
 Romer's, Nos. 0 to 91, 30¢  
 Romer's Scandinavian, &c., Nos. 100 to 505, 15¢  
 A. E. Deitz, 40¢  
 Champion Padlocks, 40¢  
 Hotchkiss, 30¢  
 Star, 45¢  
 Horseshoe, pair doz, \$9.00; 40¢; 10¢  
 Barnes Mfg. Co., 40¢; 40¢; 10¢  
 Nock's, 30¢  
 Brown's Pat., 25¢  
 Scandinavian, 40¢; 40¢; 10¢  
 Frain's Pat. Scandinavian low list, 60¢  
 Ames Sword Co. up to No. 150, 40¢  
 Ames Sword Co. above No. 150, 50¢

#### Lumber Tools.

Ring Peavies, "Blue Line", pair doz \$20.00  
 Ring Peavies, Common, pair doz \$18.00  
 Steel Socket Peavies, pair doz \$18.00  
 Mail, Iron Socket Peavies, pair doz \$18.00  
 Cant Hooks, "Blue Line", pair doz \$18.00  
 Cant Hooks, Common Finish, pair doz \$14.00  
 Cant Hooks, Mail, Socket Clasp, "Blue Line" Finish, pair doz \$16.00  
 Cant Hooks, Mail, Socket Clasp, Common Finish, pair doz \$14.50  
 Cant Hooks, Clip Clasp, "Blue Line" Finish, pair doz \$14.00  
 Cant Hooks, Clip Clasp, Common Finish, pair doz \$12.00  
 Hand Spikes, 6 to

**Molasses Gates—**

Stebbin's Pat.	70¢/70&75¢
Stebbin's Genuine	60¢/10&10¢
Stebbin's Tinned Ends	40¢/10¢
Chase's Hard Metal	50¢/10¢
Bush's	20¢
Lincoln's Pattern	70¢/70&10
Weed's	20¢/10¢

Boss, per doz.

Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	per doz, \$18@20
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**Muzzles—**

Safety	per doz, \$3.00, 25¢
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**Nails, see Trade Report.**

Wire Nails, Papered.

Association list, July 15, 1889.

70&amp;10¢/10¢/70&amp;10¢/10¢/5¢

Tack Mfrs.' list, 70¢/70&amp;10¢/5¢

Wire Nails, Standard Penny.

Card June 1, '89, base, \$2.40@2.50

**Nail Puller—**

Curtiss Hammer, per doz \$9.00

Giant, No. 1, per doz \$30.00, 10¢

Pelican, per doz \$9.00, 25¢

Boss, per doz \$30.00, 30¢

Lightning, per doz \$21.00

**Nail Sets—**

Square, per gr, \$4.00@4.25

Round, per gr, \$3.25

Cannon's Diamond Point, per gr, \$12, 20¢

**Nut Crackers—**

Table (H. &amp; B. Mfg. Co.), per doz \$2.00, 10¢

Blake's Pattern, per doz \$2.00, 10¢

Turner &amp; Seymour Mfg. Co., 50¢

**Nuts—**

Nuts, off list Jan. 1, 1888: Square, Hex.

Hot Pressed, 5.4¢ 5.9¢

Cold Punched, 5.4¢ 5.5¢

In lots less than 100 lb., per lb, add 1¢; 1-lb

boxes, add 1¢ to list.

**Oakum—**

Government, per lb 7¢@7.5¢

U. S. Navy, per lb 6¢@6.5¢

Navy, per lb 5¢@5.5¢

**Oilers—**

Zinc and Tin, 65¢@65&amp;10¢

Brass and Copper, 50¢@10¢/50¢/10¢/5¢

Malleable, Hammers' Improved, No. 1,

\$3.60; No. 2, \$4.00; No. 3, \$4.40 per doz.

Malleable, Hammers, Old Pattern, same

list, 10¢@10&amp;10¢

Prior's Pat. or "Paragon" Zinc, 40¢

Prior's Pat. or "Paragon" Brass, 50¢

Olmstead's Tin and Zinc, 60¢

Olmstead's Brass and Copper, 50¢

Broughton's Zinc, 60¢

Broughton's Brass, 50¢

Gem P. D. &amp; Co., per gro, \$2

**Packing, Steam—****Rubber—**

Standard, 60¢@10¢/60¢/10¢/10¢

Extra, 50¢@10¢/40¢

N. Y. B. &amp; P. Co., Standard, 50¢@10¢/5¢

N. Y. B. &amp; P. Co., Empire, 70¢

N. Y. B. &amp; P. Co., Salamander, 70¢

Jenkins' Standard, per lb 65¢, 30¢

per lb 80¢, 35¢

**Miscellaneous—**

American Packing, 10¢@11¢ per lb

Russia Packing, 14¢ per lb

Italian Packing, 13¢@14¢ per lb

Cotton Packing, 15¢@17¢ per lb

Jute, 7¢@8¢ per lb

**Padlocks—**

See Locks.

**Pails—****Galvanized Iron—**

Quarts, 10 12 14

Hill's Light Weight, per doz, \$2.75 3.00 3.25

Hill's Heavy Weight, per dz, 3.00 3.25 3.75

Whiting's, 2.75 3.00 3.25

Sidney Shepherd &amp; Co., 2.80 3.00 3.40

Iron Clad, 2.75 3.00 3.25

Fire Buckets, 2.75 3.25 3.50

Buckets, see Well Buckets.

**Indurated Fibre Ware—25¢**

Star Pails, 12 qt., per doz, \$4.00

Fire, Stable and Milk, 14 qt., per doz \$7.80

**Standard Fibre Ware—**

Water Pails, 12 qt., per doz, \$4.00

Dairy Pails, 14 qt., per doz, 4.50

Fire Pails, No. 1, 12 qt., per doz 4.50

Fire Pails, No. 2, 14 qt., per doz 5.00

**Pencils—**

Faber's Carpenters', high list 50¢

Faber's Round Gilt, per gro \$5.25

Dixon's Lead, per gro \$4.50

Dixon's Lumber, per gro \$6.75

Dixon's Carpenters', 40¢@10¢

**Picks—**

Railroad or Adze Eye, 5 to 6, \$12.00;

6 to 7, \$13.00; 8 to 9, \$14.00

**Picture Nails—**

Brass Head, Sargent's list, 50¢@10¢/10¢

Brass Head, Combination list, 50¢@10¢/10¢

Porcelain Head, Sargent's list, 50¢@10¢/10¢

Porcelain Head, Combination list, 40¢@10¢/10¢

Siles' Patent, 40¢

Pinking Irons— per doz 65¢ net

Pipe, Wrought Iron—

List March 23, 1887,

1½ and under, Plain, 50¢

1½ and under, Galvanized, 42¢

1½ and over, Plain, 62¢

1½ and over, Galvanized, 50¢

Boiler Tubes, Iron,

1½ and under, 52¢

2 in. and larger, 57¢

Planes and Plane Irons—

Wood Planes—

Molding, 50¢@10¢/60¢

Jenck, First Quality, 60¢@10¢/60¢

Bench, Second Quality, 60¢@10¢/60¢

Bailey's Stanley R. &amp; L. Co., 40¢@10¢/10¢

Iron Planes—

Bailey's Stanley R. &amp; L. Co., 40¢@10¢/10¢

Miscellaneous Planes (Stanley R. &amp; L. Co.), 20¢@10¢/10¢

Victor Planes (Stanley R. &amp; L. Co.), 20¢@10¢/10¢

Steer's Iron Planes, 35¢@35¢/5¢

Meriden Mal. Iron Co., 30¢@30¢/10¢/10¢

Davis's Iron Planes, 30¢@10¢/30¢/10¢/10¢

Birmingham Plane Co., 50¢@50¢/5¢

Gage Tool Co.'s Self-Setting, 20¢@10¢

Chaplin's Iron Planes, 40¢@40¢/5¢

Sargent's, 30¢@10¢/30¢/10¢/10¢

**Plane Irons—**

Plane Irons, 20¢@10¢

Plane Irons, Butcher's, \$5.00@5.25 to 5.00

Plane Irons, Buck Bros., 30¢

Plane Irons, Auburn Tool Co., This

do, 40¢

Sandusky Tool Co., 40¢

Single and Cut, 30¢

Double, 40¢

L. &amp; J. White, 25¢

**Pliers and Nippers—**

Button's Patent, 30¢@10¢/40¢

Hall's No. 2, 5 in., \$13.50; No. 4, 7 in.,

\$21.00 per doz, 20¢@10¢/20¢/5¢

Humason &amp; Beckley Mfr. Co., 50¢@50¢/10¢

Gas Pliers, 60¢

Gas Pliers, Cusack's Nickel Plated, 60¢/5¢

Eureka Pliers and Nippers, 40¢

Russell's Parallel, 25¢

P. S. &amp; W. Cast Steel, 50¢

P. S. &amp; W. Tinner's Cutting Nippers, 15¢

Crew's Pat. Wire Cutters, 30¢

Morrill's Parallel, per doz, \$12.00, 30¢/5¢

Cronk's 8 in., \$15.00; 10 in., \$21.00,

40¢@40¢/5¢

**Plumbs and Levels—**

Regular List, 70¢@10¢/70¢/10¢/10¢

Disston's, 45¢/10¢

Pocket Levels, 70¢@10¢/70¢/10¢/10¢

Davis Iron Levels, 30¢

Davis' Inclinoimeters, 10¢@10¢

**Polish, Metal.**

Prestoline, 20¢@10¢

Prestoline Paste, 30¢

Gaston's Silver Compound, 30¢/5¢

**Pokes, Animal—**

Bishop's I. X. L., per doz \$6.50

Bishop's O. K., per doz \$5.50

Bishop's Pioneer, per doz \$3.75

Bishop's American, per doz \$3.00

**Poppers, Corn—**

Round or Square, 1 qt., per gr \$12.00@15.00

Round or Square, 2 qt., per gr \$25.00@26.00

**Post Hole and Tree Augers and Diggers—**

Samson Post Hole Digger, per doz \$36.00,

25¢@10¢

Fletcher Post Hole Augers, per doz \$30, 20¢

Eureka Diggers, per doz \$16.00@17.00

Leedy's, per doz \$8.00@9.00

Vaughan's Post Hole Auger, per doz,

\$13.00@14.00

Kohler's Little Giant, per doz \$18.00

Kohler's Hercules, per doz \$15.00

Kohler's New Champion, per doz \$9.00

Schneider, per doz \$18.00

Ryan's Post Hole Diggers, per doz \$24.00

Cronk's Post Bars, per doz \$60.00,

50¢@50¢/10¢

Gibbs Post Hole Digger, per doz \$30.00, 50¢

Imperial, per doz, \$15.00

**Potato Parers—**

White Mountain, per doz \$5.00@5.50

Antrim Combination, per doz \$8.00

Hoosier, per doz \$13.50

**Pruning Hooks and Shears—**

Disston's Combined Pruning Hook and

Saw, per doz \$18.00, 20¢@10¢

Disston's Pruning Hook, per doz \$12.00,

20¢@10¢

E. S. Lee &amp; Co.'s Pruning Tools, 40¢

Pruning Shears, Henry's Pat., per doz,

\$3.75@4.00 net

Henry's Pruning Shears, per doz \$4.25@

4.50 net

Wheeler, M. &amp; C. Co.'s Combination,

per doz \$12.00, 30¢

Dunlap's Saw and Chisel, per doz \$8.50, 30¢

J. Mallinson &amp; Co., No. 1, \$6.25; No. 2, 7.25

**Pulleys—**

Hot House, Awning, &amp;c., 60¢@10¢

Japanned Screw, 60¢@10¢

Japanned Slide, 60¢@10¢

Japanned Clothes Line, 60¢@10¢

Empire Sash Pulley, 55¢@60¢

Moore's Sash, Anti-Friction, 50¢

Hay Fork, Solid Eye, \$4.00

\$4.50, 50¢@10¢/50¢/10¢/5¢

Hay Fork, "Anti-Friction," 5 in. Solid,

\$5.70

Hay Fork, "F" Common and Pat.

Bush, 20¢

Hay Fork, Tarbox Pat. Iron, 20¢

Hay Fork, Reed's Self-Lubricating, 60¢

Shade Rack, 45¢

Tackle Blocks, See Blocks

Moore's Anti-Friction 5 in. Wheel, per doz

\$12.00, 40¢

**Pumps—**

Cistern, Best Makers, 60¢@60¢/10¢

Pitcher Spout, Best Makers, 67¢@70¢

Pitcher Spout, Cheaper Goods, 70¢@70¢/5¢

**Punches—**

Saddlers' or Drive, good, per doz, 60¢@65¢

Bemis &amp; Call Co.'s Cast Steel Drive, 50¢@55¢

Bemis &amp; Call Co.'s Springfield Socket, 50¢@55¢

Spring, good quality, per doz \$2.50@2.80

Spring, Leach's Pat., 15¢

Bemis &amp; Call Co.'s Spring and Check, 40¢

Solid Timmers', per doz \$1.44, 55¢

Timmers' Hollow Punches, 20¢@25¢

Rice Hand Punches, 15¢

Avery's Revolving, 40¢

Avery's Saw-Set and Punch, See Saw Sets.

**Rail—**

Sliding Door, Wrt Brass, per lb 35¢, 15¢

Sliding Door, Bronzed Wrt Iron, per ft 7¢

Sliding Door, Iron, Painted, per foot 4¢, 40¢

Barn Door, Light In., 6¢

Per 100 feet, \$2.00 2.50 3.10, 10¢

B. D. for N. E. Hangers—

Small, Med. Large,

Per 100 feet, \$2.15 2.70 3.25, net

Terry's Wrought Iron, per foot, 4¢@5¢

Victor Track Rail, 7¢ per foot, 50¢@2¢

Carrier Steel Rail, per foot, 4¢

Moore's Wrought Iron, 25¢

**Rakes—**

Cast Steel, Association goods, 70¢

Cast Steel, outside goods, 60¢@10¢/70¢

Malleable, 70¢@70¢/5¢

Gibbs Lawn Rake, \$12.00, 50¢/15¢

Canton Lawn Rake, \$9.00, 50¢/10¢

Ft



**Machine—**  
Flat Head, Iron.....55¢  
Round Head, Iron.....50¢

**Bench and Hand—**  
Bench, Iron.....55¢10¢55¢10¢10¢  
Bench, Wood, Beech.....20¢10¢  
Bench, Wood, Hickory.....20¢10¢  
Hand, Wood.....25¢10¢25¢10¢5¢  
Lag, Blunt Point, according to size.....80¢80¢5¢

Coach and Lag, Gimlet Point.....75¢  
Bed.....25¢  
Hand Rail, Sargent's.....60¢10¢  
Hand Rail, H. & B. Mfg. Co.....70¢10¢75¢  
Hand Rail, Am. Screw Co.....75¢  
Jack Screws, Millers Falls list.....50¢50¢5¢  
Jack Screws, P. S. & W.....35¢  
Jack Screws, Sargent's.....60¢10¢60¢10¢5¢  
Jack Screws, Stearns'.....40¢40¢10¢

**Scroll Saws—**  
Lester, complete, \$10.00.....25¢  
Rogers, complete, \$4.00.....25¢  
Barnes' Builders' and Cabinet Makers'.....15¢  
Barnes' Scroll Saws.....50¢5¢25¢

**Scythe Snaths—**50¢5¢25¢50¢10¢25¢

**Shears—**  
American (Cast) Iron.....75¢10¢75¢10¢5¢  
Pruning—See Pruning Hooks and Shears.  
Barnard's Lamp Trimmers.....20¢10¢  
Tinners'.....20¢2¢  
Seymour's, List, Dec., 1881.....60¢10¢10¢60¢10¢10¢5¢

Heinrich's, List, Dec., 1881.....60¢10¢10¢60¢10¢10¢5¢  
Heinrich's Tailor's Shears.....37½¢  
First quality C. S. Trimmers.....80¢80¢10¢  
Second quality C. S. Trimmers.....80¢10¢80¢10¢10¢

Acme Cast Shears.....10¢10¢  
Diamond Cast Shears.....10¢10¢  
Clippers.....10¢10¢  
Victor Cast Shears.....75¢10¢10¢10¢5¢  
Howe Bros. & Hulbert, Solid Forged Steel.....40¢  
Chicago Drop Forge & F. Co., Solid Steel Forged.....40¢  
Clausen Shear Co., Japanned.....60¢  
Clausen Shear Co., Nickel, same list.....70¢

**Sheaves—**  
Sliding Door—  
M. W. Co., list July, 1888.....50¢10¢60¢5¢  
R. & E., list Dec. 18, 1885.....55¢20¢  
Corbin's list.....60¢10¢2¢  
Patent Roller.....60¢10¢2¢  
Patent Roller, Hatfield's.....75¢  
Russell's Anti-Friction, list Dec. 18, 1885.....60¢2¢  
Moore's Anti-Friction.....50¢

**Sliding Shutter—**  
R. & E. list Dec. 18, 1885.....60¢10¢2¢  
Sargent's list.....60¢10¢  
Reading list.....60¢10¢10¢

**Ship Tools—**  
L. & J. J. White.....20¢5¢  
Albertson Mfg. Co.....25¢

**Shoes, Horse, Mule, &c.—**  
**Horse—**  
Burden's, Perkins', Phoenix, at factory.....\$4.00

**Mule—**  
Add \$1 per keg to above prices.

**Or, Wrought—**  
Ton lots.....\$10 00  
1000 lb lots.....\$10 00  
500 lb lots.....\$10 00

**Shot—**  
(Eastern prices 2¢ off, cash, 5 days.)  
Drop, ½ bag, 25 lb.....\$1.21  
Drop, ½ bag, 5 lb......30  
Buck and Chilled, ½ bag.....1.40  
Buck and Chilled, 5 lb bag......35

**Shovels and Spades—**  
Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20¢  
NOTE.—Jobbers frequently give 5¢ off 75¢ extra on above.

Griffith's Black Iron.....50¢10¢  
Griffith's C. S.....60¢60¢10¢  
Griffith's Solid C. S. R. K. Goods.....20¢  
Old Colony (Sanford Fork & Tool Co.).....20¢  
St. Louis Shovel Co.....20¢20¢75¢  
Hussey, Binns & Co.....20¢20¢75¢  
Hubbard & Co.....20¢20¢75¢  
Lehigh Mfg. Co.....50¢10¢  
Payne Pettibone & Son, list January, 1886.....30¢  
Remington's (Lowman's Pat.) 30¢10¢40¢  
Rowland's, Black Iron.....50¢10¢  
Rowland's Steel.....60¢50¢60¢10¢

**Shovels and Tongs—**  
Iron Head.....60¢10¢60¢10¢5¢  
Brass Head.....60¢10¢10¢

**Skeins, Thimble—**  
Western list.....75¢50¢75¢10¢  
Columbus Wrt. Steel, list Nov. 1, 1887.....20¢  
Coldbrookdale Iron Co.....50¢10¢  
Utica P. S. T. Skeins.....60¢  
Utica Turned and Fitted.....35¢

**Sieves—**  
Buffalo Metallic, S. S. & Co.....50¢25¢10¢  
Shaker (Barber's Pat.) Flour Sifters.....20¢  
Electric.....\$1.00  
Hunter's.....\$1.00  
Smith's Adjustable Sifters.....\$1.00  
Smith's Adjustable Milk Strainer.....\$2.00  
Smith's Adjustable T. & C. Strainer.....\$1.25

**Sieves, Wooden Rim—**  
Iron. Plated.  
Mesh 18, Nested, ½ doz.....70¢ 90¢  
Mesh 20, Nested, ½ doz.....85¢ 110¢  
Mesh 24, Nested, ½ doz.....\$1.00 1.10

**Slates—**  
School, by case.....40¢

**Snaps, Harness, &c.—**  
Anchor (T. & S. Mfg. Co.).....65¢  
Fitch's (Bristol).....50¢10¢  
Hotchkiss.....10¢  
Andrews.....50¢  
Sargent's Patent Guarded.....70¢10¢10¢  
German, new list.....40¢10¢  
Covert.....50¢5¢2¢  
Covert, New R. E.....60¢10¢2¢  
Covert Spring.....60¢10¢10¢

**Soldering Irons—**  
Covert's Adjustable, list Jan. 1, 1886.....35¢2¢

**Spoke Shaves—**  
Iron.....45¢  
Wood.....30¢  
Bailey's (Stanley R. & L. Co.).....40¢10¢  
Stearns.....20¢10¢30¢  
Cincinnati.....25¢10¢

**Spoke Trimmers—**  
Bonney's.....\$10.00, 50¢  
Stearns.....20¢10¢  
Ives, No. 1, \$15.00; No. 2, \$12.00.....\$10.00, 20¢  
Douglas'.....\$10.00, 20¢

**Spoons and Forks—**  
Tinned Iron—  
Basting, Cen. Stamp, Co.'s list.....70¢10¢  
Solid Table and Tea, Cen. Stamp, Co.'s list.....70¢10¢  
Buffalo S. S. & Co.....35¢2¢  
Silver-Plated—(4 mos. or 5¢ cash 30 days.)  
Meriden Brit. Co., Rogers.....50¢  
C. Rogers & Bros.....50¢  
Rogers & Bros.....50¢  
Reed & Barton.....50¢  
Wm. Rogers Mfg. Co.....50¢10¢60¢  
Simpson, Hall, Miller & Co.....50¢10¢  
Holmes & Edwards Silver Co.....60¢60¢5¢  
L. Boardman & Son.....50¢10¢

Holmes & Edwards Silver Co.:  
No. 67 Mexican Silver.....50¢10¢5¢  
No. 30 Silver Metal.....50¢10¢5¢  
No. 24 German Silver.....50¢10¢5¢  
No. 50 Nickel Silver.....50¢10¢  
German Silver.....50¢10¢  
German Silver, Hall & Elton.....50¢5¢40¢  
Nickel Silver.....50¢5¢50¢10¢5¢ cash  
Britannia.....40¢10¢60¢  
Boardman's Nickel Silver.....50¢  
Boardman's Britannia Spoons, case lots.....60¢

**Springs—**  
Elliptic, Concord, Platform and Half Scroll.....60¢60¢5¢  
Cliff's Bolster Springs.....25¢

**Squares—**  
Steel and Iron.....75¢10¢80¢  
Nickel-Plated.....fulcrs. ex. 10¢  
Try Square and T Bevels.....60¢10¢60¢10¢

Disston's Try Square and T Bevels.....45¢10¢  
Winterbottom's Try and Miter.....30¢10¢  
Starrett's Micrometer Caliper Squares.....25¢  
Avery's Flush Bevel Squares.....40¢  
Avery's Bevel Protractor.....50¢

**Standard Fibre Ware—**  
Per Dozen, Plain, Dec'd.....\$2.00 2.25  
Wash-Basins, 10½ in.....2.25 2.75  
Keelers, 11½ in.....4.00  
Cuspidors.....8.00  
Splittoons, "Daisy," 8 in.....4.00 4.50  
Peck Measure.....4.00  
Half peck Measure.....5.00  
See also Falls.

**Staples—**  
Fence Staples, Galvanized.....Same price  
Fence Staples, Plain.....as B7B Wire  
See Trl. Rep.

**Steelyards—**40¢10¢50¢

**Stocks and Dies—**  
Blacksmith's  
Waterford Goods.....30¢50¢30¢10¢  
Butterfield's Goods.....30¢50¢30¢10¢  
Lightning Screw Plates.....25¢30¢  
Reece's New Screw Plates.....35¢50¢40¢  
Reversible Ratchet.....30¢  
Gardner.....25¢

**Stone—**  
Hindustan No. 1, 3¢; Axe, 3½¢; Slips No. 1, 4½¢  
Sand Stone.....\$10 20¢  
Washita Stone, Extra.....\$10 20¢  
Washita Stone, No. 1.....\$14 15¢  
Washita Stone, No. 2.....\$10 11¢  
Washita Slips, No. 1, Extra.....\$36 38¢  
Washita Slips, No. 1.....\$24 25¢  
Arkansas Stone, No. 1, 4 to 6 in.....\$1.50  
Turkey Oil Stone, 4 to 8 in.....\$1.40  
Turkey Slips.....\$1.00  
Lake Superior Chise.....\$1.16  
Lake Superior Slips, Chase.....\$1.31 32¢  
Seneca Stone, Red Paper Brand.....\$18 20¢

Seneca Stone, High Rounds.....\$18 20¢  
Seneca Stone, Small Whets.....\$20 25¢  
Stone Polish—  
Joseph Dixon's.....\$10 10¢  
Gem.....\$10 10¢  
Gold Medal.....\$10 10¢  
Mirror.....\$10 10¢  
Lustro.....\$10 10¢  
Rising Sun.....\$10 10¢  
Dixon's Plumbago.....\$10 10¢  
Boynton's Noon Day.....\$10 10¢  
Parlor Pride Stove Enamel.....\$10 10¢  
Yates' Liquid.....\$10 10¢  
Yates Standard Paste Polish, 10-b cans.....\$15  
Jet Black.....\$10 10¢  
Japanese.....\$10 10¢  
Prestid.....\$10 10¢  
Diamond O. K. Enamel.....\$10 10¢  
Bonnell's Liquid Stove Polish.....\$10 10¢  
Bonnell's Paste Stove Polish.....\$10 10¢  
Black Eagle Benzine Paste, 5 and 10 lb cans.....\$12 12¢  
Black Jack Water Paste, 5 and 10 lb cans.....\$12 12¢  
Nickel Plate Paste.....\$10 10¢

**Tacks, Brads, &c.—**  
List, Jan. 2, 1889. (Note.—Some manufacturers are selling Tacks at slightly higher prices than those named.)  
American Iron Carpet, Blued.....80¢  
American Iron Carpet, Tinned.....80¢10¢10¢  
Steel Carpet, Blued.....80¢10¢10¢  
Steel Carpet, Tinned.....80¢10¢10¢  
Swedes Iron Carpet, Blued.....80¢  
Swedes Iron Carpet, Tinned.....80¢10¢10¢  
American Iron Cut.....75¢75¢10¢5¢  
Swedes Iron.....75¢50¢75¢10¢5¢  
Swedes Iron, Upholsterers'.....75¢10¢80¢  
Tinned Swedes Iron.....75¢10¢80¢  
Tinned Swedes Iron, Upholsterers'.....75¢10¢80¢  
Gimp and Lace.....75¢10¢80¢  
Tinned Gimp and Lace.....75¢10¢80¢  
Swedes Iron Trimmers'.....75¢10¢80¢  
Swedes Iron Miners'.....75¢10¢80¢

Swedes Iron Bill Posters'.....75¢10¢75¢10¢5¢  
Swedes Steel (Swedes Iron price list),  
80¢80¢5¢

Copper Tacks.....50¢10¢  
Copper Finishing, Trunk and Clout Nails.....50¢10¢  
Finishing Nails.....75¢75¢5¢  
Trunk and Clout Nails.....70¢10¢  
Tinned Trunk and Clout Nails.....70¢10¢  
Basket Nails.....70¢10¢  
Common and Patent Brads.....70¢10¢  
Hungarian Nails.....70¢10¢  
Chair Nails.....70¢10¢  
Zinc Glaziers' Points.....50¢50¢5¢  
Clear Box Nails.....50¢10¢50¢10¢5¢  
Picture-Frame Points.....50¢10¢50¢10¢5¢  
Looking Glass Tacks.....50¢10¢50¢10¢5¢  
Leathered Carpet.....50¢10¢50¢10¢5¢  
Brush Tacks.....50¢10¢50¢10¢5¢  
Shoe Finders' List Jan. 2, 1888, 10¢10¢

Lining and Saddle Nails, List Jan. 1, 1888:  
Silvered.....30¢10¢10¢  
Japanned.....20¢10¢10¢  
Double-Pointed Tacks.....85¢  
Wire Carpet Nails.....50¢10¢  
Wire Brads & Nails, see Nails, Wire.  
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50¢10¢

**Tap Borers—**  
Common and Kind.....20¢10¢  
Ive's Tap Borers.....35¢5¢  
Enterprise Mfg. Co.....20¢10¢30¢  
Clark's.....35¢5¢30¢

**Tapes, Measuring—**  
American.....33½¢33½¢5¢  
Spring.....40¢  
Chesterman's, Regular list.....25¢60¢

**Thermometers—**  
Tin Case.....80¢80¢10¢

**Thimble Skeins—**See Skeins.

**Ties, Bale—**Steel  
Standard Wire, list.....50¢10¢5¢

**Tinners' Shears, &c.—**  
Shears and Snips (P. S. & W.).....20¢25¢  
Punches, Snips, J. Mallinson & Co.....33½¢

**Tinware—**  
Stamped, Japanned and P'd, list Jan. 20 1887.....75¢75¢5¢

**Tire Benders, Upsetters, &c—**  
Stoddard's Lightning Tire Upsetters.....15¢  
Detroit Perfected Tire Bender.....15¢

**Tobacco Cutters—**  
Champion.....20¢10¢30¢  
Wood Bottom.....\$10 20¢  
All Iron.....\$10 20¢  
Nashua Lock Co.'s.....\$18.00 50¢55¢  
Wilson's.....55¢  
Sargent's.....\$24. 55¢10¢  
Acme.....\$20.00, 40¢

**Transom Litters—**  
Wollensak's:  
Class 3 and 4, Bronzed Iron.....50¢  
Class 3 and 4, Bronze Metal.....25¢  
Class 3 and 4, Brass.....35¢  
Skylight Lifters.....35¢  
Crown, Eagle and Shield.....50¢  
Reiher's, list Jan. 1, 1887.....50¢10¢2¢  
Bronzed Iron Rods.....30¢  
Brass, Real Bronze or Nickel Plate.....30¢  
Excelsior.....50¢10¢2¢  
Shaw's.....50¢10¢  
Payson's Universal.....40¢60¢10¢

**Traps—**  
Game—  
Newhouse.....40¢40¢5¢  
Onedia Pattern.....70¢70¢10¢  
Game, Blake's Patent.....40¢10¢5¢  
Mouse and Rat—  
Mouse Wood Choker, ½ doz holes, 11½ doz.....\$1.50, 10¢  
Mouse, Round Wire.....\$1.50, 10¢  
Mouse, Cage, Wire.....\$1.50, 10¢  
Mouse, Catch 'em alive.....\$1.50, 10¢  
Mouse, Bonanza.....\$1.50, 10¢  
Mouse Delusion.....\$1.50, 10¢  
Rat, Decoy.....\$1.50, 10¢  
Ideal.....\$1.50, 10¢  
Cyclone.....\$1.50, 10¢  
Hotchkiss Metallic Mouse, 5-hole 11½ doz.....\$1.50, 10¢  
In full cases.....\$1.50, 10¢

**Trowels—**  
Lothrop's Brick and Plastering.....25¢25¢5¢  
Reed's Brick and Plastering.....15¢  
Disston's Bk and Plastering.....25¢25¢10¢  
Peace's Plastering.....25¢  
Clement & Maynard's.....20¢  
Rose's Brick.....25¢  
Worral's Brick and Plastering.....20¢  
Garden.....70¢

**Triers—**  
Butter and cheese.....25¢

**Trucks, Warehouse, &c.—**  
B. & L. Block Co.'s list, '82.....40¢

**Tubes, Boiler—**  
See Pipe.

**Twine—**  
Flax Twine—  
No. 9, ¼ and ½ lb Balls.....22¢ 30¢  
No. 12, ¼ and ½ lb Balls.....21¢ 30¢  
No. 18, ¼ and ½ lb Balls.....18¢ 26¢  
No. 24, ¼ and ½ lb Balls.....16¢ 24¢  
No. 30, ¼ and ½ lb Balls.....16¢ 27¢  
No. 204, Mattress, ¼ and ½ lb Balls.....48¢50¢  
Chalk Line, Cotton, ½ lb Balls.....25¢  
Mason Line, Linen, ½ lb Balls.....55¢  
2-Ply Hemp, ¼ and ½ lb Balls (Spring Twine).....11¢  
3-Ply Hemp, 1 lb Balls.....12¢6¢12¢  
3-Ply Hemp, 1½ lb Balls.....11¢6¢11¢  
Cotton Wrapping, 5 Balls to lb.....15¢6¢10¢  
2, 3, 4 and 5-Ply Jute, ½ lb Balls.....10¢  
Wool.....13¢6¢14¢  
Cotton Mops, 6, 9, 12 and 15 lb to doz.....18¢

**Vises—**  
Solid Box.....60¢60¢5¢  
Parallel—  
Fisher & Norris Double Screw.....15¢10¢  
Stephens.....25¢30¢  
Parker's.....20¢25¢  
Wilson's.....55¢  
Howard's.....40¢  
Bonney's.....40¢10¢  
Millers Falls.....40¢40¢10¢  
Trenton.....40¢50¢40¢10¢  
Merrill's.....150¢20¢  
Sargent's.....60¢10¢10¢  
Backus and Union.....40¢  
Double Screw Leg.....15¢10¢  
Prentiss.....20¢25¢  
Simpson's Adjustable.....40¢  
Moore's.....20¢

**Saw Filers—**  
Bonney's, Nos. 2 & 3, \$15.00.....40¢10¢  
Stearns'.....33½¢10¢33½¢10¢10¢  
Stearns' Silent Saw Vises.....33½¢35¢  
Sargent's.....60¢10¢  
Hopkins'.....\$10 10¢  
Reading.....40¢10¢  
Wentworth.....\$10 10¢  
Combination Hand Vises.....\$10 10¢  
Cowell Hand Vises.....20¢  
Bauer's Pipe Vises.....10¢  
Cincinnati.....20¢10¢

**Wagon Boxes—**  
Per lb.....2½¢

**Wagon Jacks—**  
Daisy.....25¢

**Washer Cutters—**  
Smith's Pat.....\$10 10¢  
Johnson's.....\$10 10¢  
Penny's.....\$10 10¢  
Appleton's.....\$10 10¢  
Bonney's.....\$10 10¢  
Cincinnati.....25¢10¢

**Washers—**  
Size.....1/8 5-16 3/8 1/2 5/8 3/4 1  
Washers.....6 3/4 3 1/2 4 1/2 5 1/2 6 1/2 7 1/2  
In lots less than 200 lb, ½ lb, add ¼¢, 5-6 boxes 1¢ to list.

**Wedges—**  
Iron.....\$10 30¢  
Steel.....\$10 40¢

**Well Buckets, Galvanized—**  
Hill's.....\$10 10¢  
Iron Clad.....\$10 10¢  
Whiting's Flat Iron Band.....\$10 10¢  
Whiting's Wired Top.....\$10 10¢

**Well Wheels—**  
8 in., \$2.25; 10 in., \$2.70; 12 in., \$3.25

**Wire—**  
Iron—  
Market,  
Br. & Ann., Nos. 0 to 18.....75¢75¢10¢  
Cop'd, Nos. 0 to 18.....70¢70¢10¢  
Galv., Nos. 0 to 18.....25¢10¢  
Tin'd, Tinned list Nos. 0 to 18.....70¢  
Stone,  
Br. and Ann'd, Nos. 16 to 18, 72½¢  
Bright and Ann'd, Nos. 19 to 26, 75¢  
Br. and Ann'd, Nos. 27 to 36.....80¢  
Tinned.....70¢10¢75¢  
Tinned Broom Wire.....70¢10¢75¢  
Galvanized Fence, Nos. 8 and 9.....65¢5¢  
Annealed Fence, Nos. 10 to 14.....75¢5¢  
Annealed Grape, Nos. 10 to 14.....25¢30¢  
Brass, list Jan. 18, 1884.....30¢35¢  
Copper, list Jan. 18, 1884.....30¢35¢  
Barb Fence.....See Trade Report  
Wire on Spools.....65¢  
Mallin's Steel and Tin'd Wire on Spools.....60¢  
Mallin's Brass and Cop. Wire on Spools.....50¢  
Cast Steel Wire.....\$10 00, 25¢  
Stub's Steel Wire.....\$10 00, 25¢  
Steel Music Wire, Nos. 12 to 30, 55¢  
Picture Wire.....New list, 50¢  
Barb Wire Safety Guards.....\$100, \$9.00, 25¢  
Wire Clothes Lines, see Lines.

**Wire Cloth, Netting, &c.—**  
Painted Screen Cloth, good quality.....\$100 sq. ft., \$1.80 @ \$1.90  
Galvanized Wire Netting.....75¢75¢5¢

**Wire Goods—**  
See Bright Wire Goods.

**Wire Rope—**  
List May 1, 1886.  
Iron.....30¢  
Cast Steel.....40¢

**Wrenches—**  
American Adjustable.....40¢  
Baxter's Adjustable "S".....40¢10¢50¢  
Baxter's Diagonal.....40¢10¢50¢  
Cox's (genuine) "Mechanics".....55¢35¢  
Cox's "Mechanics".....55¢10¢35¢  
Girard Standard.....70¢10¢  
Machinists', Sterling Wrench Co.....70¢10¢  
Lamson & Sessions' Engineers'.....60¢10¢  
Lamson & Sessions' Standard.....70¢10¢  
Goss' Pattern, Wrought.....75¢10¢5¢  
Girard Agricultural.....75¢10¢5¢  
Lamson & Sessions' Agric'l.....80¢  
Sterling Wrought.....35¢  
Bemis & Call's  
Pat. Combination.....35¢  
Merrick's Pattern.....25¢  
Briggs' Pattern.....25¢  
Cylinder or Gas Pipe.....40¢5¢  
No. 3 Pipe.....40¢10¢  
Alken's Pocket (Bright).....\$1.00, 50¢10¢  
The Favorite Pocket.....\$1.00, 40¢  
Webster's Pat. Combination.....25¢  
Boardman's.....20¢10¢  
Always Ready.....25¢5¢  
Alligator.....50¢  
Donohue's Engineer.....20¢10¢  
Acme, Bright.....50¢5¢  
Acme, Nickel.....50¢5¢  
Walker.....50¢5¢  
Diamond Steel.....55¢3¢

**Wringers, Clothes—**  
List March 11, 1880, 25¢ cash.

**Wrought Goods—**  
Staples, Hooks, &c., list Jan. 12, 1889,  
80¢20¢80¢25¢

# CURRENT METAL PRICES.

SEPTEMBER 18, 1889.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

## IRON AND STEEL.

### Bar Iron from Store.

Common Iron:	
1 to 2 in. round and square...	per lb 1.90 @ ...
1 to 6 in. x 3/4 to 1 in. ....	per lb 2.00 @ 2.10¢
Refined Iron:	
1 to 2 in. round and square...	per lb 2.20 @ 2.30¢
1 to 4 in. x 3/4 to 1 1/2 in. ....	per lb 2.20 @ 2.30¢
4 1/2 to 6 in. x 3/4 to 1 in. ....	per lb 2.20 @ 2.30¢
1 to 6 in. x 1/2 and 5-16 .....	per lb 2.20 @ 2.30¢
Rods—1/2 and 1-16 round and sq. ....	per lb 2.20 @ 2.30¢
Bands—1 to 6 x 3-16 to No. 12. ....	per lb 2.20 @ 2.30¢
"Burden Best" Iron, base price. ....	per lb 3.00 @ ...
Burden's "H. B. & S." Iron, base price. ....	per lb 2.80 @ ...
"Uster" .....	per lb 3.00 @ ...
Norway Rods .....	per lb 4.00 @ 5.00¢

### Merchant Steel from Store.

Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots .....	2 1/2¢
Best Cast Steel, base price in small lots .....	8¢
Best Cast Steel Machinery, base price in small lots .....	5¢

### Sheet Iron from Store.

Common American.	R. G. Cleaned.	
10 to 16 .....	per lb 2.75 @ 2.80¢	3.25 @ 3.50¢
17 to 20 .....	per lb 2.85 @ 3.00¢	3.25 @ 3.50¢
21 to 24 .....	per lb 3.00 @ 3.10¢	3.50 @ 3.75¢
25 and 26 .....	per lb 3.20 @ 3.30¢	3.50 @ 3.75¢
27 .....	per lb 3.35 @ 3.37 1/2¢	3.75 @ 4.00¢
28 .....	per lb 3.50 @ 3.50¢	4.00 @ 4.25¢
Galv'd, 14 to 20, per lb 4.50 @ 4.88¢		
Galv'd, 11 to 24, per lb 4.87 1/2¢ @ 4.75¢		
Galv'd, 25 to 26, per lb 5.25 @ 5.12¢		
Galv'd, 27 .....	per lb 5.62 1/2¢ @ 5.48¢	
Galv'd, 28 .....	per lb 6.00 @ 5.85¢	
Patent Planchet .....	per lb 10¢	B. 9¢
Russia .....	per lb 9 1/4¢ @ 10¢	
American Cold Rolled B. B. ....	per lb 5¢ @ 7¢	
Craig Polished Sheet Steel .....	per lb 7¢	

### English Steel from Store.

Best Cast .....	per lb 15¢
Extra Cast .....	per lb 16 1/2¢
Swaged, Cast .....	per lb 16¢
Best Double Shear .....	per lb 15¢
Blister, 1st quality .....	per lb 12¢
German Steel, Best .....	per lb 9¢
3d quality .....	per lb 8¢
Sheet Cast Steel, 1st quality .....	per lb 15¢
2d quality .....	per lb 14¢
3d quality .....	per lb 12 1/2¢

## METALS.

### Tin.

Banca, Pigs .....	per lb 23¢
Straits, Pigs .....	per lb 22 1/2¢
English, Pigs .....	per lb 22 1/2¢
Straits in Bars .....	per lb 23 1/2¢

### Tin Plates.

Charcoal Plates.—Bright.		Per box.
Melyn Grade.	IC, 10 x 14 .....	\$5.75 @ \$6.00
"	IC, 12 x 12 .....	6.00 @ 6.25
"	IC, 14 x 20 .....	5.75 @ 6.00
"	IC, 20 x 28 .....	12.00 @ 12.50
"	IX, 10 x 14 .....	7.25 @ 7.50
"	IX, 12 x 12 .....	7.50 @ 7.75
"	IX, 14 x 20 .....	7.25 @ 7.50
"	IX, 20 x 28 .....	15.00 @ 15.50
"	DC, 12 1/2 x 17 .....	5.50 @ 5.75
"	DX, 12 1/2 x 17 .....	7.00 @ 7.25
Call and Grade.	IC, 10 x 14 .....	5.75 @ 6.00
"	IC, 12 x 12 .....	6.00 @ 6.25
"	IC, 14 x 20 .....	5.75 @ 6.00
"	IX, 10 x 14 .....	7.25 @ 7.50
"	IX, 12 x 12 .....	7.50 @ 7.75
"	IX, 14 x 20 .....	7.25 @ 7.50
"	IX, 20 x 28 .....	11.00 @ 11.50
"	IC, 10 x 14 .....	5.00 @ 5.12 1/2¢
"	IC, 12 x 12 .....	5.12 1/2¢ @ 5.25
"	IC, 14 x 20 .....	5.00 @ 5.12 1/2¢
"	IX, 10 x 14 .....	6.00 @ 6.25
"	IX, 12 x 12 .....	6.25 @ 6.50
"	IX, 14 x 20 .....	6.00 @ 6.25
"	IX, 20 x 28 .....	12.00 @ 12.50
"	DC, 12 1/2 x 17 .....	4.75 @ 5.00
"	DX, 12 1/2 x 17 .....	5.75 @ 6.00

### Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20.....	\$4.75 @	\$5.00
10 x 20.....	7.25 @	7.50
20 x 28.....	9.75 @	10.25
IX, 10 x 14, 14 x 20.....	5.50 @	5.75
BV Grade.—IC, 10 x 14, 14 x 20.....	4.40 @	4.60
Charcoal Plates.—Terne.		
Dean Grade.—IC, 14 x 20.....	\$4.35 @	\$4.62 1/2
20 x 28.....	8.75 @	9.25
IX, 14 x 20.....	5.40 @	5.62 1/2
20 x 28.....	11.00 @	11.37 1/2
Abecarne Grade.—IC, 14 x 20.....	4.25 @	4.50
20 x 28.....	8.45 @	9.00
IX, 14 x 20.....	5.25 @	5.50
20 x 28.....	10.50 @	10.80

### Tin Boiler Plates.

IXX, 14 x 26 .....	112 sheets .....	\$12.50 @ \$12.75
IXX, 14 x 28 .....	112 sheets .....	12.75 @ 13.00
IXX, 14 x 31 .....	112 sheets .....	14.25 @ 14.50

## Copper.

Duty: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ per lb. Manufactured (including all articles of which Copper is a component of chief value), 45¢ ad valorem.

### Ingot.

Lake .....	@ 13¢
Anchor Brand .....	@ 12 1/2¢

## Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, May 23, 1889, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound.																												
			C	er	64	oz.	32	to	64	oz.	16	to	32	oz.	14	to	16	oz.	12	to	14	oz.	10	to	12	oz.	8	to	10	oz.	Less than 8 oz.
30	72		20	20	20	20	20	21	21	22	22	23	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32
36	96		20	20	20	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	33
36		96	20	20	20	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	33
48	96		20	20	20	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	33
48		96	20	20	20	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	33
60	96		20	20	20	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	33
60		96	20	20	20	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	33
84	96		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
84		96	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
Over 84 in. wide			23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79

All Bath Tub Sheets. 16 oz. 14 oz. 12 oz. 10 oz. Per pound. 20.5 0.25 0.27 0.30

Bolt Copper, 3/4 inch diameter and over, per pound. 3.00

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 60 inches diameter, up to 96 inches diameter inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.

Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

### Copper Bottoms, Pits and Flats.

14 ounce to square foot and heavier ..... 23¢ || 12 ounce and up to 14 ounce to square foot ..... | 24¢ |
| 10 ounce and up to 12 ounce ..... | 26¢ |

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

### Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each ..... 8¢ || Tinning sheets on one side, 30 x 60 each ..... | 30¢ |
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each .....	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each .....	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.), each .....	12¢
Tinning sheets on one side, other sizes, per square foot .....	24¢
For tinning both sides double the above prices.	

### Planished Brass and Copper.

14 x 48. 14 and 16 oz. and heavier ..... 31¢ || 12 oz. and lighter ..... | 33¢ |
| 24 x 48 and 30 x 60. 14 and 16 oz. and heavier ..... | 44¢ |
| 12 oz. .... | 37¢ |

### Seamless Brass and Copper Tubes.

O. G.	N. G.	2%	3%	4%	5%	6%	8%	10%	12%
8-14	6-12	35	31	28	27	26	25	24	23
15	13	36	31	29	28	27	26	25	23
16	14	37	32	30	29	28	27	26	23
17	15	38	33	31	30	29	28	27	24
18	16	40	34	32	31	30	29	28	25
19	17	41	35	33	32	31	30	29	27
20	18-19	42	37	35	34	33	32	31	28
21	20	44	39	37	36	35	34	33	32
22	21	46	40	38	37	36	35	34	34
23	22	48	42	40	39	38	37	36	37
24	23	51	44	42	41	40	39	38	39
25	24	54	47	44	43	42	41	40	41

Copper, Bronze and Gilding Tube, 2¢ per lb additional.

### Brased Brass Tubing. (To No. 20, inclusive.)

Above 5-16 inch to 3 inch, inclusive ..... 35¢ || Plain, above 3 inch ..... | 45¢</ |